

BRITISH RAINFALL,
1888.

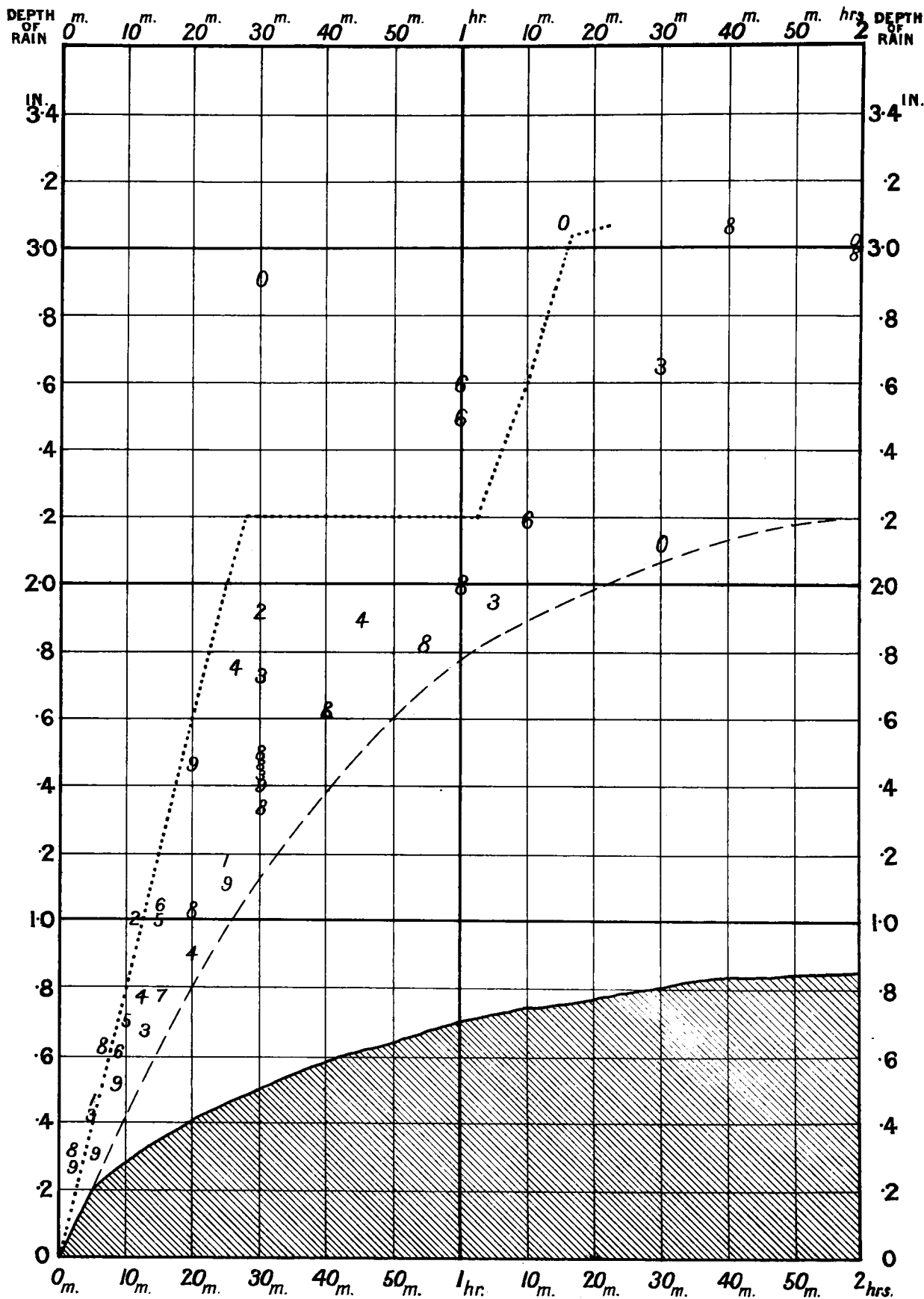
LONDON :

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1889.

INTENSE RAINS 1879 TO 1888.

DURATION



BRITISH RAINFALL, 1888.

ON

THE DISTRIBUTION OF RAIN

OVER THE

BRITISH ISLES,

DURING THE YEAR

1888,

AS OBSERVED AT MORE THAN 2500 STATIONS IN
GREAT BRITAIN AND IRELAND,

WITH ARTICLES UPON VARIOUS BRANCHES OF RAINFALL WORK.

COMPILED BY

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Colonial Institute; Membre correspondant étranger Soc. Royale de
Médecine Publique de Belgique; Hon. Mem. Hertfordshire Nat.
Hist. Soc., Essex Field Club; Northamptonshire Nat. Hist.
Soc., Croydon Microscopic Soc., &c. &c. &c.*

L O N D O N :

EDWARD STANFORD, COCKSPUR STREET, S.W.

1889.

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ERRATA IN BRITISH RAINFALL, 1887.

- Page 19. First line after "and" insert "previous to 1887."
- „ 36. Table, Monthly Gauges, 1885, Difference No. 3, for + '80 read
- '80.
- „ [65]. Last line, for 206 in. read 2'06 in.
- „ [93]. Tenth line, for 2'13 in. read 21'13 in.
- „ [132]. Line ten, for "eihgt" read "eight."
- „ [145]. Table I., second line, Ben Nevis total, for 128'59 read 129'01.
- „ [150]. Second table, head line, for 35 read 41.
- „ „ „ „ 1854 lasted for 35 read 65.
- „ „ Second line below table, after "been" insert "at Greenwich." The
last line but three refers not to Greenwich, but to Exeter—
the writer had mixed up the two records.
- „ [188]. Northampton (Coton Mill). This was wrongly placed ; there
are two Coton Mills. It is correct in the present volume.
- „ [193]. Ninth entry, Cranmer Hall, gauge found to have allowed water
to leak in ; amount too large.
- „ [210]. Last station but seven, Broughton. Measuring glass wrong ;
for 37'43 read 39'05.
- „ „ Last station. Error in return ; for 51'95 read 53'35.
- „ [230]. Peterhead (Buchanness), for 22'65 read 17'65.

BRITISH RAINFALL, 1888.

As explained in later pages of this book, it is scarcely possible to compare the work involved in the compilation of the recent and of the early volumes of this series. Progress is supposed to be a general law, and it would be a disgrace were these volumes allowed to recede ; but progress involves more work, more cost, more time, and this, coupled with a steady growth in the staff of observers, renders it year by year a harder struggle to verify, classify, and print accurately all the records by an early date. One richly endowed establishment has just issued its report for 1885. I have, at any rate, the consolation of not being so far behind as that.

I hope that everyone will, at least, read the first section of the following report, and do what is possible towards effecting the object for which I there plead.

G. J. SYMONS.

62, CAMDEN SQUARE, N.W.

June 25th, 1889.

REPORT.

A New Decade.—With the 1st of January, 1890, will begin the fourth decade of rainfall work in this country since I undertook the collection and organization of the records.

I need hardly say that I am very desirous that we should secure a strong and well distributed staff of observers in readiness for the commencement of the new decade. For though none can tell who will fall out of the ranks, we do know that ere the decade is over nearly 500 of those who begin will have passed away. A staff that has such a loss to face must be a strong one, and I think that we should strain every nerve to ensure that, by November, 1889, the number of stations has been raised from what it now is (about 2,700) to at least 3,000.

And there is something else to be considered. Every observer should examine the rain gauge he is now using, and see that it is not only perfectly sound, water-tight, and strong *now*, but also that it is in such good order that it may be reasonably expected to be efficient on January 1st, 1900, should he, or his successors, be able to observe it up to that date. Surely, if it be worth while to keep a record of rainfall at all, it is worth while to have a durable and accurate gauge. Before purchasing and using a new gauge, I hope that every observer will read through the rules which (partly for that very purpose) I have reprinted at the end of this volume.

There is yet one more point for consideration. Trees usually grow considerably in ten years. Observers who desire to provide thoroughly good observations should look at every tree and shrub near their gauge, not as it is now, but as it will be ten years hence, and having done so, they should act according to Rule I.

North Wales Gauges.—It is a long while since *British Rainfall*, 1864, was written, and yet I must go back to it with reference to the above subject. It is stated in that pamphlet (for one cannot call it a volume) that Captain Mathew of Wern had, at his own cost,

and entirely through his own exertions, established 25 stations in North Wales, and entirely surrounded Snowdon with a girdle of them. A quarter of a century has removed many of the observers, and although some of the gauges have been renewed during the period, some had not, and were verging on dilapidation. Captain (long since become Major) Mathew removed in 1879 from the old Wern, near Port Madoc, to a new Wern, near Guildford, but he has never forgotten or neglected his Welsh gauges, and quite lately he sent a circular to each station enquiring as to the condition of the gauge, and has since renewed everything which was at all defective.

The Nunes Gauges.—Part of the £100 left by Miss Nunes was devoted to supplying some rain gauges, which were erected in 1883. A summary of their history was given in *British Rainfall*, 1886, and it will suffice to say that of those there reported as at work, two have been returned, as the observers were unable to continue to observe them, and these have been re-erected, one at Boston Spa, Yorkshire, and the other at Eskdale, Cumberland. Four returns for 1888 have failed to arrive, and of these one gauge is totally lost; the others I shall try to recover and to set to work elsewhere. All the others are in regular use, and being well cared for.

The Royal Society Lake District Gauges.—Almost all these have continued in good order throughout 1888. The exceptions are that one of the Stye gauges burst with the frost, the Rev. R. Armstrong neglected to read the one at Newlands, and I can get no tidings of the one sent to Kirkstone Pass.

Manchester, Sheffield, and Lincolnshire Railway Company.—This Company has, for thirty-four years, maintained a system of rainfall registration throughout its extensive district. Beginning in 1855 with the publication of a sheet giving records from 23 stations, until for 1888 they published the returns from 43 stations. Early in 1889 I heard from the Superintendent that they intended to start several more, and I then suggested to him that it would be well to send a copy of the rules to all the men in charge of the gauges, with a letter from himself pointing out the importance of accuracy and uniformity. This has been done, and although not so good as if I could go round and see all the men, it will, I have no doubt, tend considerably to the improvement of the quality of the records.

Inspection of Rainfall Stations.—We are still without that which is of the utmost importance, viz., a trained inspector, who should be constantly travelling about to see that all the gauges are

in good order. I have pointed out this necessity for many years, but the funds are not forthcoming, and so it has to be neglected. I personally do what I can, but the growth of the office work leaves me little leisure. Fortunately something in this direction is done by the Meteorological Council, by the Royal Meteorological Society, and by the Scottish Meteorological Society, inspecting the stations reporting to them ; but, after all, theirs are but a fraction of the total number of the gauges at work.

Overflowing of Rain Gauges.—As years roll on, observers are gradually providing themselves with better rain gauges, and the silly little things which would hold only an inch or two of rain are nearly all gone. But still there is a tendency towards providing for too little. If, when great rains fall, observers were always at home, always ready to obey Rule XIV., even in the middle of the night, large capacity would not be required. But they will not, and in many cases could not without serious risk to health, go to the gauge in the middle of a torrential downpour, and therefore I have altered Rule XVI. so as to insist upon all gauges holding *six inches*. In confirmation of the wisdom of this course, I need refer only to the failures of two of our Essex stations to record the amount which fell on August 1st, 1888 ; the Upminster Hall gauge collected 4·50 in. *and ran over* ; the gauge at North Ockenden Rectory, about two miles S.E. of Upminster, collected 4·56 in. and then it *ran over*. And this, be it remembered, in a very dry part of the country.

Old Observations.—It will be remembered that I mentioned last year that I was having an exhaustive search made for observations of rainfall during the 17th and 18th centuries. The result has been better than I expected ; the bulk of the extraction is done, and I hope that the discussion may be completed before the next volume appears.

Office Work.—This grows every year. As the organization becomes consolidated, the observers become more zealous, and many more details are sent in than used to be, so that we not only have returns from many more stations than formerly, but the returns themselves give much more detail. Every return which comes in is not only compared, but recast, and if the least error is detected, it is sent back to the observer—which obviously involves considerable correspondence, time, and cost. We have no time to keep account of letters and returns received and issued, but they are probably not fewer than 15,000 a year. This would give an average for each

working day of about 50 ; but of course the number varies much—on some days in the early part of the year it will run up to 400 or 500 ; at other times, to-day (Whit Monday) for instance, there can scarcely have been a dozen. And then all these returns have to be duly sorted, tabulated, and preserved, because in legal cases it is sometimes not sufficient to send our own copies, but the actual returns with the signatures of deceased observers have to be produced in court. Hence the advantage of having preserved every return received from 1860 to the present date.

Another great addition to the work arises from the very large number of returns now printed locally—(1) privately, (2) in country newspapers, (3) in the transactions of Natural History Societies—besides the tables published by the Royal Meteorological Society, the Scottish Meteorological Society, the Meteorological Council, and the Registrars General of England and of Scotland. I procure copies of as nearly as possible all these, and every entry is compared with the returns as sent direct to me by the observer. This leads to great improvement, through the detection of errors, but it takes a very long time. I think that no one person could do it in less than two months' continuous work.

Finance.—The subscription list keeps nearly as usual ; it is rather less this year, but not seriously so. As has been the case for many years, it shows that the few continue good friends and true till death—(no one but Miss Nunes ever arranged to help us afterwards)—but it is still the few. The following list contains about 350 names ; the separate observers (irrespective of corporate bodies, each owning from 10 to 60 gauges) number about 2,200, so that not one observer out of six is quoted in the list. There are others contributing smaller sums, but there are over a thousand who contribute nothing. Two of these, who each professed to be deeply interested in rainfall but who had never contributed sixpence, died last year ; irrespective of landed estates, the personalty of one was sworn at nearly a quarter of a million ; the other, I think, was more.

**LIST OF ALL SUMS OF £1 AND UPWARDS RECEIVED IN PAYMENT
FOR BOOKS, DIAGRAMS, &c., OR AS CONTRIBUTIONS TO THE
GENERAL EXPENSES OF RAINFALL INVESTIGATIONS IN 1889.**

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THE MEASUREMENT OF SNOW.

WE greatly dislike saying things twice over, but our first duty is to do everything in our power to improve the quality of the observations recorded in these annual volumes, and though we rejoice to still have with us some who helped us with observations for our leaflet of 1860, the bulk of our staff has joined long since that date. Our early volumes are out of print, and therefore those who desire to know what has been done towards the systematic measurement of snow cannot easily ascertain.

We had painful proof of the necessity for writing fully upon the subject after the heavy snow storms in the early part of 1888, when observers wrote to us for instructions as if no heavy snow storm had ever before occurred, and no rules had ever been issued. It was painful, because it proved that some were acting as observers who had never received, or had not taken the trouble to read and master, the very simple rules contained in *Arrangements*, many thousand copies of which have been printed and distributed gratuitously; in fact, we send them gratis and post free to everyone who asks for them, and to very many who do not.

Before proceeding further, we reprint the rule, so as to bring it as prominently before our readers as possible—

XV.—SNOW.—In snow three methods may be adopted—it is well to try them all. (1) Melt what is caught in the funnel, by adding to the snow a previously ascertained quantity of warm water, and then, deducting this quantity from the total measurement, enter the residue as rain. (2) Select a place where the snow has not drifted, invert the funnel, and turning it round, lift and melt what is enclosed. (3) Measure with a rule the average depth of snow, and take one-twelfth as the equivalent of water. This being a very rough method, it is not to be adopted if it can be avoided. Some observers use in snowy weather a cylinder of the same diameter as the rain gauge, and of considerable depth. If the wind is rough, all the snow is blown out of a flat-funnelled rain gauge. Snowdon pattern gauges are much the best.

We do not wish to suggest that British observers are worse than those of other countries. On the contrary, we know many stations in mountain districts on the Continent where snow is ignored entirely, and where, when it is properly attended to, we shall not be surprised to find that the annual rain and snowfall is raised by from 5 to 10 inches.

Before proceeding to consider the foregoing rule, and the possibility of amending it, we will epitomise as briefly as we can the notes upon the subject which have appeared in the various issues of *British Rainfall*, &c.

British Rainfall, 1864.—On pages 11 and 12 of this pamphlet occur the first Hints to Observers, and the rule as regards Snow is practically identical with that now in force—a quarter of a century has altered nothing, has merely added a few words of explanation and caution. As an interesting antiquity, it may be well to print it *verbatim et literatim*.

In snow, three methods may be adopted; it is well to try them all:—(1) Melt what is caught in the funnel, and measure that as rain; (2) select a place where the snow has not drifted, invert the funnel, and turning it round, lift and melt what is enclosed; (3) measure with a rule the average depth of snow, and take a twelfth as the equivalent of water. (Comparative observations of this class will be very acceptable.)

British Rainfall, 1865.—Appendix, page vii., contains the following note from the late Mr. W. F. Harrison:—

“MEASUREMENT OF SNOW.

“Referring to *British Rainfall*, 1864, p. 12, you give as one of three methods of measuring snow: ‘Measure the average depth of snow and take a twelfth as the equivalent of water.’ This differs so widely from the result of my own observation, that I should be very glad to see the results of any direct experiments given on your first page. On a recent occasion, 2 in. of snow gave .37 in. of water—that is, about 1 to 5.4.

W. F. HARRISON, Bartropps, Weybridge Heath.”

[Our friend’s note raises the point very clearly, and we willingly admit the rule to be bad, but as some observers will not take the trouble to melt the snow, the rule was added to secure uniformity and the nearest practicable approach to accuracy. Obviously the ratio depends entirely on the density; and the following experiments in different localities and winters, show that any ratio from one-

thirty-fifth to one-fifth may be obtained. We see nothing in the following table to induce us to recommend more than one-twelfth.]

Depth of Snow.	Yield in Water.	Depth of Snow to yield 1 in. of water.	Observer.	Depth of Snow.	Yield in Water.	Depth of Snow to yield 1 in. of water.	Observer.
in.	in.	in.		in.	in.	in.	
1·70	·048	35	G. J. S.	4·50	·366	12	E. J. L.
·75	·030	25	M. F. W.	·50	·042	12	G. J. S.
3·00	·140	21	E. J. L.	6·50	·527	12	E. J. L.
1·00	·048	21	G. J. S.	·10	·009	11	G. J. S.
1·00	·049	20	G. J. S.	2·12	·194	11	G. J. S.
1·00	·052	19	M. F. W.	3·00	·300	10	M. F. W.
18·00	·950	19	H. S. E.	6·00	·587	10	M. F. W.
2·00	·112	18	G. J. S.	12·00	1·270	9	H. S. E.
1·50	·088	17	M. F. W.	3·50	·391	9	E. J. L.
1·75	·120	15	M. F. W.	·50	·090	6	G. J. S.
1·00	·068	15	M. F. W.	2·00	·370	5	W. F. H.
·75	·050	15	G. J. S.	·50	·100	5	G. J. S.
·15	·012	13	G. J. S.	5·50	1·215	5	M. F. W.

Mean of the above 26 measurements :—14 inches of snow = 1 inch of rain.

Observers.—H. S. Eaton, Little Bridy ; W. F. Harrison, Weybridge Heath ; E. J. Lowe, Nottingham ; G. J. Symons, Camden Town ; Col. M. F. Ward, Calne.

At the foot of this table we have in our own copy the following additional values :—

Dr. J. Davy, F.R.S.	{ 6·5 = ·54 = 12	M. Simpson, Esq.	{ 1·0 = ·10 = 10
	{ 4·5 = ·47 = 10		
Rev. I. H. Gosset.....	4·0 = ·38 = 10		
			{ ·5 = ·06 = 8
			{ 1·0 = ·13 = 8
			{ 4·0 = ·18 = 22

On a subsequent page (xiv.) there is the following further note upon the subject :—

“ MEASUREMENT OF SNOW.

“ We have had several notes on this subject, but unfortunately cannot print them all, so group the remarks. The prevailing impression seems to be that the equivalent should be about that which Mr. Harrison gave, namely, 1 to 5·4. If a sufficient number of really careful observations are sent in to neutralize those published in the March circular, well and good ; we will raise the equivalent from that which we have hitherto recommended (viz., 1 to 12) to anything *proved* to be more correct. Much care must, however, be taken in the experiments, which we hope many observers will make next winter. The Rev. J. Brooke, of Shiffnal, writes :—‘ Have all the observers melted their snow in a fair and proper way ? for unless they have,

grave errors may exist. I have been assured (although I have never tried it) that if you fill a saucepan with snow, and set it on the fire to melt, the bottom will be burnt out before the snow will melt into water, *i.e.*, all will evaporate ; this of course is an extreme case, but evaporation must be entirely prevented.' A second point is to take the snow fairly *as it falls*, not to fill a vessel with the snow ; obviously, by so doing, the snow is rendered more dense : the proper plan, I presume, is—previous to snow, lay down a piece of tin or board in an open place ; after the fall, measure its vertical depth in two or three parts of the board ; then invert the funnel of the rain gauge on the board, taking care to hold it horizontal, press it firmly down till it touches the board, brush away the snow from the rest of the board, turn over funnel and board together, and, leaving the funnel covered by the board, place the funnel in its bottle, or other similar receptacle, and in a moderately warm room."

Meteorological Magazine, April, 1867.—The article in this number is practically an abstract of what we have above written, but at the end there is a letter by the late Mr. G. Dines, who was so careful an experimenter that we are bound to give his values ; they were as follows.

Inches of Snow.		Yield.		Snow to equal 1 in. of Rain.
11 $\frac{3}{4}$	.....	·97	.....	12·1
12	.....	1·12	.....	10·7
7 $\frac{1}{2}$	.....	·78	.....	9·6
7 $\frac{1}{2}$	.....	·71	.....	10·6
10	.....	1·17	.....	8 5
Average				10·2

Rain—How, When, Where, and Why it is Measured.—This was issued in 1867, and in it we find (p. 21) the addition, to the original rule, of the remark :—

"Some observers use in snowy weather a cylinder of the same diameter as the rain gauge, and of considerable depth. If the wind is at all rough, all the snow is blown out of a flat-funnelled rain gauge.

British Rainfall, 1872, contains a long article (15 pages) on the measurement of snow in this and other countries. As this volume is not scarce, we need not reprint *in extenso*, but merely give an abstract.

The article states that no rules whatever were issued (up to November, 1871) by Mr. Glaisher to the observers who report through him to the Registrar General ; that the rules issued by the

Scottish Meteorological Society were “hazy”; that Admiral FitzRoy issued no rules to his observers, and that even in 1871—[seven years after our rule had been published]—the Meteorological Committee had got no further than “Snow and hail to be melted daily when necessary.” Sir Henry James’s *Instructions*, though intended for use in all parts of the world, and the *Report of the Committee on Physics*, though expressly designed for use in snowy countries, are absolutely silent on the subject, and the *Admiralty Manual*, prepared by Sir J. Herschel, goes no further than to say, “Snow collected or water frozen in the reservoir should be melted.” Then follow notes on the measurement of snow in other countries. In this, as in so many other respects, M. Renou must, to a great extent, be regarded as a pioneer. When we drew up our rule in 1864, we were unaware that six years previously in his *Instructions Météorologiques*, M. Renou had written to the following effect:—

“The depth of snow estimated in water is ordinarily determined by the rain gauge; it is melted, either by carrying the gauge near the fire, in which case it is necessary to cover the instrument to prevent evaporation, or by adding to it, as at Versailles, a sufficient quantity of boiling water of a known weight to entirely melt it. But when an exceptionally large quantity of snow falls, as that which occurred in the centre of France in February, 1855, and often in some countries, the rain gauges are insufficient; it is well then to collect the snow in a cylindrical vase, 1 ft. 6 in. or 2 ft. in height, of which the surface, equal to that of the rain gauge, or of a known relation to it, is placed also at 6 ft. above the ground, and well isolated, so as to present the least possible obstacle to the wind. The snow must be melted, and the water which comes therefrom measured in the rain gauge.

“The gauges placed on a level with the ground should not be used to collect the snow, since the wind, however light it may be, levels the inequalities of the land; these gauges then receive too much.

“A like weight of snow lays on the ground to very variable depths, according to temperature, and also the height which produces a settling so much the greater, as it is more considerable; this settling also varies according as the snow falls with wind or in calm weather, and according to the form of the snow crystals; a covering of snow of simple prisms occupies less in volume than a covering composed of hexagons with light branches and numerous modifications. It is generally estimated that snow takes up a height equal to ten and

even to twenty times that of the water which it contains ; but when it is melting it is much denser."

We are by no means sure that M. Renou, in escaping Scylla, has not run into Charybdis. He states that cylinders, if placed on a level with the ground, will collect too much owing to drift, but surely a cylinder perched up 6 ft. high, like a dwarf chimney, will collect too little. Someone should compare two cylinders, one say 2 ft. high standing on the ground, and the other attached to a post so that its top edge is 6 ft. high.

In Austria they appear to have used extra cylinders for the measurement of snow back at least to 1868 ; and in Belgium before 1852 Quetelet had found the inefficiency of an ordinary shallow funnel, and had provided the equivalent of the Snowdon funnel, which, in 1864, we had flattered ourselves was an original invention !

The American rules, up to 1871, seem almost wholly directed to the cutting out, with the rain gauge funnel, of a cylinder of snow, lifting and melting it. Loomis gives 12 in. of snow as the equivalent of 1 in. of water ; the *Smithsonian Instructions* give 10 in. = 1 in.

Mr. E. J. Lowe, F.R.S., seems to have been the first English observer who was really careful in measuring the depth of snow. He gave the following rules as far back as 1856 :—

"*Snow gauge.* The gauge used here (Nottingham) consists of a thin metal cylinder, 8 in. in diameter and 12 in. deep, graduated upon one side to a quarter of an inch. This cylinder will penetrate through the snow, scarcely disturbing it, and the depth in inches is at once seen. By careful manipulation, if the cylinder is turned round, all the enclosed snow can be lifted from the ground.

"It is desirable to melt it in a wide-mouthed bath (being previously corked to prevent evaporation), as it frequently happens that snow is blown out of the mouth of the rain gauge before it has had time to melt ; consequently the result of melted snow as shown by the rain gauge will be too little in amount."—E. J. LOWE, *Orr's Circle of the Sciences*, 1856, Article "Meteorology," p. 583.

The long article in *British Rainfall*, 1872, concludes with many notes and remarks by various observers, and by the Editor. We will compress them as much as possible.

In melting snow much care must be taken to prevent evaporation. Snowdon funnel gauges must be emptied as soon as four inches of snow have fallen ; if this be not done, they cease to have any advantage over old-fashioned gauges.

Snowdon gauges, owing to the greater surface of funnel, &c., to be wetted, must show a less total rain than others, but this deficiency is probably small. Can anyone give the amount?

Snow cylinders or caps to be added to ordinary gauges would require great care and solidity in fixing, would be liable to be not in position when wanted, could not be attached to mountain gauges, and would, therefore, to some extent, vitiate comparisons between ordinary and monthly records.

“Neither of the present methods (*i.e.*, probably (1) lifting a cylinder of snow, and (2) taking 1-12th) of estimating the amount of water given by a fall of snow provides for the contingency of rain and snow together, which sometimes occurs, or of rain succeeding to snow in the night.”

The following conclusions seem incapable of abbreviation:—

I. *Melt what is in the funnel.* But the funnel does not retain all that it ought to do.

II. *Invert the funnel on the snow, lift and measure the contents.* But the under surface of the snow wastes from the warmth of the earth, and it is only when the ground is frozen hard that this plan is trustworthy. Moreover, this will not answer at all if rain accompanies the snow, or falls before the measurement.

III. *Measure the depth, and take one-twelfth.* But the value varies from one-fifth to one-thirty-fifth, and this plan also fails utterly with mingled snow and rain.

IV. *Use a cylinder the same diameter as the rain gauge, but two feet deep.* Query, if the true amount of snow would fall into them if raised two feet above the ground, and if lower they would be liable to be buried. Again, supposing that in snowy weather the amount collected by the ordinary rain gauge was rejected, and that caught by this cylinder substituted (which would be the proper course), what is to be done about mountain gauges?

In the *Meteorological Magazine*, April, 1873, the Rev. F. W. Stow gives two snow equivalents:—

Snow.		Yield.		Snow to yield 1 in.
6 in.	.....	·66 in.	.....	9 in.
8 in.	.....	·43 in.	.....	19 in.

Of the former he says, “every particle blew out of the most exposed gauges, only those with high rims being able to retain it.” Of the latter he speaks as “excessively dry and light.”

In the *Meteorological Magazine* for July, 1873, appeared a further letter by him, so important that we reprint it *in extenso*:—

MEASUREMENT OF SNOW.

To the Editor of the Meteorological Magazine.

"SIR,—In the discussion of this subject in *British Rainfall*, 1872, I notice the following suggestion and comment, 'Make all rain gauge funnels deeper. We see no objection to this, except the increased surface to be wetted.'

"May I refer your readers to the reports of my experiments at Hawsker, in the two preceding volumes of *British Rainfall*? In that for 1870, Table III., 'Form series,' we find a 5-inch gauge with $2\frac{1}{2}$ inch upright rim, the funnel and rim being of zinc, with turned brass edge, giving a slight excess, in every month, over one with an ordinary copper funnel and brass rim; the total from April to December, being 21·362 against 19·935 inches, and 17·917 against 17·535 if rain only is counted. In 1871, a gauge with a rim 6 inches high was used instead, the results being (see Table I.) a total of 21·451 against 21·332 inches from January 1st to October 24th, but a loss of about 1 per cent. during the summer months. There was only one snowstorm in that year, viz., in February. My own opinion is that a gauge with *straight upright rim 3 inches high* will accurately catch 19 out of 20 falls of snow at most of our stations, and will not fail even for the 20th, if during the progress of the fall of the snow it be occasionally pressed down into the bottom of the funnel. I have had several such made and used ever since, and I do not think the loss by evaporation from increased surface is appreciable, although occasionally there is a slight difference, owing to such gauges having less dew deposited in them.—I am, Sir, your obedient servant,

"F. W. STOW.

Harpenden, May 13th, 1873."

In comment upon this we point out merely that though a deep funnel can be made to deal accurately with 3 or even 6 inches of snow by pressing it down as Mr. Stow suggests, we think that repeated complete emptying and melting would alone enable it to deal with those exceptional cases which give from 6 inches to (as in April, 1888) 20 inches.

In the *Meteorological Magazine* for May, 1874, appeared the first note upon the measurement of snow by Col. Ward, who had removed from Wiltshire to Switzerland, and who has probably done more than anyone else towards investigating the relative density of snow. He found that by taking up cakes of snow 5 inches in diameter and 3 inches thick he obtained from 10 measurements—

SNOW IN FINE CRYSTALS.						SNOW IN LARGE FLAKES.				
	Snow. in.		Yield. in.	Inches of snow to 1 of water.		Snow. in.		Yield. in.	Inches of snow to 1 of water.	
Greatest....	3·00	...	·233	...	13	.....	3·00	...	·320	... 9
Average....	3·00	...	·224	...	13	.....	3·00	...	·299	... 10
Least	3·00	...	·220	...	14	... ..	3·00	...	·260	... 12

Then he tried the other plan, let the snow fall into his two funnels (each 5 in. in diameter, but one with the rim only $\frac{1}{2}$ in. deep, the other with a 6 in. Snowdon rim), and melted what was caught by each, recording also the depth of the snowfall and the product of melting a lifted cake of the snow. As the observations are certainly important, we have so re-written the table as to bring out the salient features.

Depth.	Measure.	Snow Gauge. B.	Rain Gauge. C.	Inches of Snow to yield 1 in. of Water.		
	A.			A.	B.	C.
in.	in.	in.	in.			
7	·652	·722	·722	11	10	10
5	·420	·610	·420	12	8	12
5	·430	·440	·440	12	11	11
6	·500	·500	·200	12	12	30
5	·430	·450	·300	12	11	17
3	·225	·230	·120	13	13	25
3	·230	·250	·230	13	12	13
1	·080	·100	·100	13	10	10
3	·210	·210	·200	14	14	15
7	·500	·570	·310	14	12	23
5	·310	·310	·200	16	16	25
2 $\frac{1}{4}$	·130	·130	·130	17	17	17
3	·180	·200	·150	17	15	20
55 $\frac{1}{4}$	4·297	4·722	3·522	14	12	18

We have struck one entry out of the table because the rain gauges contained rain from a thunderstorm as well as the produce of the subsequent snow.

In *British Rainfall*, 1874, Col. Ward deals fully with the subject, but as this and subsequent volumes can be easily procured, we shall not reprint *in extenso*, but merely epitomize the leading features.

He shows that the density (as shown by the melting of a raised cake) varies according to the kind of snow.

Kind of Snow	Minute Crystals.		Small Snow.		Large Dense Flakes.		Large Light Flakes.			Round Globules.	
Inches required to yield 1 in. of water }	13	...	10	...	10	...	17	...	30	...	17

In the next place he criticises Rule XV., and the criticisms of a

good observer should always be most carefully considered—"I have come to the conclusion that no one of the three methods of measurement named in Rule XV. is satisfactory. The first—adding boiling water—is troublesome, may break your measuring glass, and is not entirely reliable."

[We do not remember suggesting the use of *boiling* water, the rule now says *warm*, and we cannot trace having ever said even *hot*.]

"The second—invert the funnel—does not answer unless the ground be frozen hard. It is only on a frozen surface of earth or gravel, where there is always more or less ice, that it answers. A tin plate or wooden board does not answer; I have tried both, and the first fallen snow, even in a temperature of 25°, invariably melts. During my second observations of three years I had two zinc cylinders 8 in. and 5 in. at work alongside the gauges, and in no case after a fall of snow was the depth in them as great as that on the surrounding ground; the yield, however, was generally the same as that of the inverted funnel, the cylinder retaining the first fallen and melted snow, which a flat tin or board would not. The yield, too, in almost all instances both of cylinders and of inverted funnels was less than that of the gauge."

In the remainder of the article Col. Ward speaks highly of the Snowdon pattern rain gauge, which from its introduction in 1864 has become more and more common.

In *British Rainfall*, 1875, there are two papers upon snow measurement, one by Col. Ward, the other by the Editor. Col. Ward's observations are mostly within the ordinary limits, but there is one remarkable one in which snow 4 inches deep on the level yielded in the Snowdon gauge only 0·08 in., therefore 50 inches of that snow would be required to produce 1 inch of rain.

From the editorial note we quote only two paragraphs.

"It does not appear judicious to suppress all mention of the approximate rule of 1-12th, because cases will arise in which there are only two alternatives, viz., to adopt *some* equivalent value, or to omit the record altogether. It seems evident that although in this country we ought sometimes to adopt 1-6th and sometimes 1-18th, it is better to take the average of 1-12th than to break up a year's record by making no entry at all."

In a postscript there is the record of an observation made by Col. Ward, which is absolutely unique, viz., that two inches deep of very small snow yielded only ·02 in. in the Snowdon gauge, and

only .015 in. when lifted in a cylinder and melted. The former would put the equivalent as 100 inches of snow for one of water, the latter as 133 to one.

In the *Meteorological Magazine* for February, 1876, Mr. Dymond shows how widely different is the amount of snow collected by rain gauges even when close together, and how much their indications depend on the capacity of the funnels. He adds the important remark, "I do not much believe in measuring the depth of snow on the ground ; generally a great deal melts before the snow begins to lie."

The next note seems to be in *British Rainfall*, 1878, where Col. Ward gives another elaborate series of details. The equivalents range from 6 to 1 to 33 to 1, and average 14 to 1. This was the first case of which we are aware in which the temperature was systematically recorded, in order to see if it threw any light on the question of density. Col. Ward again points out that the inverted funnel method is useless unless the temperature of the earth is decidedly below 32°.

In *British Rainfall*, 1879, there is a short table from Col. Ward giving his observations during the winter 1879—80.

In *British Rainfall*, 1880, there is an extremely good paper, by Mr. E. Mawley, entitled, "*A few simple directions for the measurement of snow under various conditions.*" This paper does not lend itself readily to abridgment, and should be read *in extenso*. We must however quote here one portion, which we strongly press on the notice of all observers.

"Considering how slight are the demands which a rain gauge makes upon an observer's time during the greater part of the year, I do not think he should begrudge the little additional care and attention which these snow measurements occasionally require. Let him, on the contrary, when he sees the snowflakes falling, recognize in them messengers come to remind him that the gauge which is to receive and measure these flakes may ere long require some little assistance at his hands."

In the *Meteorological Magazine* for April, 1887, there is a letter from Mr. Stow recommending the lifting of a cake of snow off of a board—Col. Ward's criticisms on which we have already reported. The last paragraph in Mr. Stow's letter is one which must on no account be omitted.

"But in a really bad storm you are fortunate if by any device you can get within a quarter of an inch of the truth."

We must also call attention to the able historical paper upon snow equivalents, by M. Lancaster, in *Ciel et Terre* for April, 1888.

Finally, we have to thank Col. Ward for the values reported on pages 29 to 31 of the present volume.

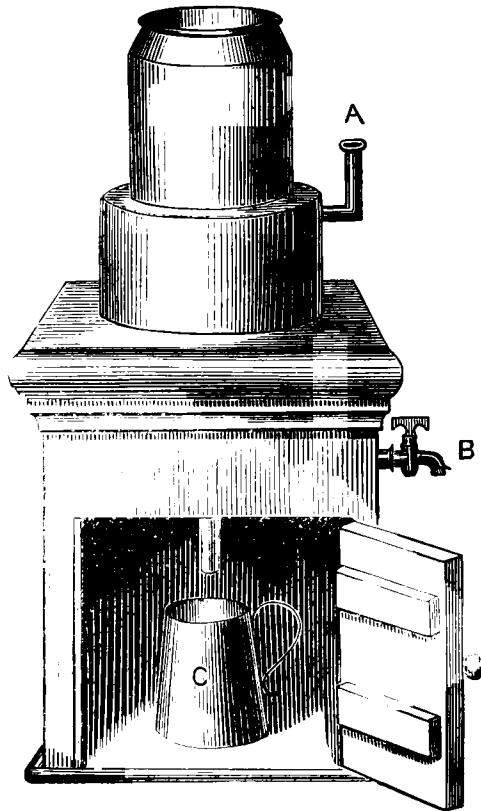
SUMMARY.

It is not much use collecting and collating all the facts and opinions if one does not finish by drawing some conclusions, and yet the consideration of what we have written tends chiefly to prove the difficulty of the problem.

We should be the first to abandon Rule XV. if we could see how to frame a better, but at present we do not. If observers would but follow Mr. Mawley's advice, and take a little pains to see that their rain gauge funnel did not get too full, method (1) would give a trustworthy value. But a snowstorm may come on during the night, or more troublesome still, rain in the evening may turn to snow. For such a case, the independent snow cylinder is, we believe, the only method. But without careful and conscientious observers this plan is liable to error. We know one important station where the system has been long and carefully worked, but it gives extra trouble, and hence we are not sure that its adoption might not lead to errors as great as those it would cure. Suppose that one provides a snow cylinder closed at the bottom, and of which the length is 2 ft., and the diameter equal to that of the rain gauge. If it is conscientiously emptied *every day* when the rain gauge itself is emptied, this cylinder will meet, without any extra care, the difficult case of rain turning to, and followed by, snow. But everything depends on its being emptied *every day*. No attempt at "allowing for what was in" will do, (1) because the observers may be mistaken as to how long the contents have been accumulating, and (2) because there is no knowing what has been lost by evaporation.

Some persons say, "Oh, put a light or a lamp in the gauge, and then you will melt the snow as it falls." But one would hardly put a lamp in every night, and snow does not always announce when it will fall. Moreover, the heat required varies with the rate of the fall of snow, and what would just thaw a heavy fall would with a light fall make the funnel so hot that each flake would be evaporated as it fell. Several persons have arranged for the melting of snow by the addition of hot water, but the best arrangement is that designed

by Mr. J. Sidebottom, of Millbrook, Manchester, who has kindly sent us the photograph, whence the annexed engraving has been made. The gauge is wholly of copper and double. Hot water is poured in at A, and drawn off by the tap B, and has no possible means of mingling with the melted snow which passes from the funnel into the vessel C ready for its measurement.



The most ingenious and novel idea of which we have heard is that carried out by MM. Richard Frères, of Paris, for Mr. Rotch, of the Blue Hill Observatory, United States, in which the falling snow produces its own record by its weight—no melting is therefore required. But then everybody cannot afford to write to Messrs. Richard and order such an instrument.

The general adoption of Snowdon rims has, however, rendered the measurement of all (except deep) snows much easier, and if observers could, and would, adopt Mr. Mawley's advice, and either empty the gauge frequently, or from time to time press down the snow in the funnel, we believe that fairly accurate records would be obtained.

SNOW MEASUREMENTS MADE IN BAVARIA,

BY COL. WARD, F.R.A.S., &c.

We have been favoured by Col. Ward with the table on page 30, which contains the results of 51 determinations of the yield of snow during the winter 1888-89 as made by him at Partenkirchen in Bavaria.

We have converted these values into the equivalent depth of snow which in each case would be required to produce one inch of water, and this is given on p. 31.

In two cases the lightness of the snow was such that 40 inches of snow would have been required to produce 1 inch of water—and on the other hand there was one case where the snow, though falling at a temperature below freezing point, was so dense that 5 inches of snow would have yielded 1 inch of water.

The average of the whole series is 14 inches of snow for 1 of water.

We have tabulated the values in various ways in order to ascertain the relation between the density and the temperature, but though the general fact that the lowest temperatures accompany the lightest snow remains, the discordances are both numerous and considerable.

It seems to us that this is to be expected until in observations of this class all “soft hail” records are rejected, or at any rate separated from true snow.

Snow.—Yield in Water, 1888-9.

SNOW.	YIELD IN WATER.							TEMPERATURE.			
	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	Mean	Min.	Mean	Min.
in.	in.	in.	in.	in.	in.	in.	in.	deg.	deg.	deg.	deg.
0.3	...	...	...	...	.01	...	...	14	9		
0.4	..	...	...	.01	.01	...	...	19	16 J ;	10	0 F
"	...	...	...	...	.02	...	...	18	9		
"	.06	...	...	...	...	.06	...	36	34 O & M		
0.6	...	...	...	...	.04	.06	...	24	22 F ;	18	17 M
"	.07	...	...	...	...	...	...	35	32		
0.7	...	...	...	.02	...	...	...	27	26		
1.0	...	...	...	...	.03	.03	...	21	20 F ;	21	9 M
"	...	...	...	...	.04	.04	...	25	15 F ;	23	18 M
"	...	..	...	...	.05	..	...	29	19		
1.1	...	...	.20	...	...	...	...	28	27		
1.2	...	...	...	...	...	.18	.12	34	27 M ;	35	32 A
1.3	...	...	...	.12	...	...	...	29	27		
1.5	...	.28	...	...	...	...	...	35	31		
1.6	...	...	...	...	.10	...	...	20	14		
"	...	..	...	...	.15	...	...	24	21		
1.7	...	...	...	.05	...	...	...	32	26		
2.0	...	...	...	...	...	.08	.06	25	18 M ;	27	15 A
"	...	...	...	...	.10	...	...	31	24		
"	...	.13	...	...	...	...	...	31	24		
"	...	.15	...	...	.30	...	...	26	24 N ;	33	30 F
3.0	...	...	...	...	.17	.17	...	15	11 F ;	8	—3 M
"	...	...	...	...	.30	...	...	30	29		
3.1	...	...	...	.08	...	...	...	22	10		
3.5	...	..	...	...	.18	...	...	19	9		
"	.32	.20	...	...	...	...	...	34	32 O ;	30	29 N
4.0	...	...	...	...	.19	...	...	24	19		
"	...	...	...	...	.25	.25	...	20	15 F ;	22	11 M
"	...	...	...	...	.26	.40	...	18	—4 F ;	8	—3 M
5.0	...	...	...	...	.27	.27	...	18	16 F ;	32	31 M
"	...	...	...	..	.50	...	...	24	19		
5.5	...	...	...	...	...	.33	...	32	31		
6.0	...	...	...	...	...	.32	.24	22	11 M ;	36	28 A
"	...	...	...	...	.42	...	...	32	26		
6.3	...	...	...	...	.17	...	...	29	28		
7.0	...	...	...	...	.52	..	...	33	29		
7.5	...	...	...	...	...	.71	...	19	17		

Inches of Snow to equal one inch of Rain, 1888-9.

Depth of Snow.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	TEMPERATURE.			
								Mean.		Min.	
in.								deg.	deg.	deg.	deg.
0.3	...	...	..	...	30	...	...	14	9		
0.4	...	...	...	40	40	...	...	19	16 J ; 10	0 F	
"	...	...	...	...	20	...	...	18	9		
"	7	...	...	...	...	7	...	36	34 O ; 36	34 M	
0.6	...	...	...	...	15	10	...	24	22 F ; 18	17 M	
"	9	...	...	...	...	...	...	35	32		
0.7	...	...	...	35	...	...	...	27	26		
1.0	...	...	...	...	33	33	...	21	20 F ; 21	9 M	
"	...	...	...	...	25	25	...	25	15 F ; 23	18 M	
"	...	...	...	...	20	...	...	29	19		
1.1	...	...	5	...	...	...	...	28	27		
1.2	...	...	...	...	...	7	10	34	27 M ; 35	32 A	
1.3	...	...	...	11	...	...	...	29	27		
1.5	...	9	...	...	...	...	...	35	31		
1.6	...	...	...	...	16	...	...	20	14		
"	...	...	...	...	11	...	...	24	21		
1.7	...	...	...	34	...	...	...	32	26		
2.0	...	...	...	...	...	25	33	25	18 M ; 27	15 A	
"	...	...	...	...	20	...	...	31	24		
"	...	15	...	...	...	...	...	31	24		
"	...	13	...	...	7	...	...	26	24 N ; 33	30 F	
3.0	...	...	...	...	18	18	...	15	11 F ; 8	—3 M	
"	...	...	...	...	10	...	...	30	29		
3.1	...	...	...	39	...	...	...	22	10		
3.5	...	...	...	...	19	...	...	19	9		
"	11	18	...	...	...	...	...	34	32 O ; 30	29 N	
4.0	...	...	...	...	21	...	...	24	19		
"	...	...	...	...	16	16	...	20	15 F ; 22	11 M	
"	...	...	...	...	15	10	...	18	—4 F ; 8	—3 M	
5.0	...	...	...	...	19	19	...	18	16 F ; 32	31 M	
"	...	...	...	...	10	...	...	24	19		
5.5	...	...	...	...	...	17	...	32	31		
6.0	...	...	...	...	...	19	25	22	11 M ; 36	28 A	
"	...	...	...	...	14	...	...	32	26		
6.3	...	...	...	...	37	...	...	29	28		
7.0	...	...	...	...	14	...	...	33	29		
7.5	...	...	...	...	...	11	...	19	17		
Average	9	14	5	32	20	17	23				

ON SOME INTENSE RAINS, 1879 TO 1888.

IN working up the usual article, on a subsequent page, on "Heavy Rains in Short Periods," I was so struck by their frequency in 1888, that I began to work backwards and search for a parallel.

Time will allow me to deal with only one branch of the subject this year. It is the most striking one, though its full utility cannot be known until other branches are worked out.

I have this year collected together the records of the most intense rains for ten years past. By "intense," I mean the largest amounts recorded in the shortest times.

Before commencing, I should like to point out that our information upon this subject would be immensely increased, if ordinary observers would note *accurately* the duration and amount of heavy rains. There are far too many records of "1 hour," "about an hour," and too few of "57 minutes," "1 hour and 2 minutes," and such like—of the former one never feels sure, the latter indicate care and precision.

It is only necessary to look down the following table, and notice the frequency of simple fractions of an hour—10, 15, 20, 30, minutes, and of exact tenths of an inch, .40, .70, .90, 1 inch, 1.50, 2.00, 2.50, 3.00—to be satisfied that many of the statements lack precision, are, in some cases, not real measurements, but merely impressions.

The best way to help on this branch of rainfall work is by the erection of storm rain gauges, such as that represented in *British Rainfall*, 1877, p. 32; next to that, but inferior, because the time scale (*i.e.*, the length of paper devoted to each hour) is too small, follow self-recording rain gauges.

Another preliminary remark is, that observers must not run away with the idea that, because they have no cases which approach those here given, the lesser falls which they may note are unworthy of record. That by no means follows. Until, in another year, the geographical distribution of intense rains has been dealt with, no one knows which of the following is the more remarkable :—

1886, July 25, IX. Wakefield, Stanley 2.50 in. in 1 hour.

1888, June 26, II. Sevenoaks, Purleigh 2.00 in. in 1 hour.

Let, therefore, no one imagine that, because I once measured

1·04 in. as having fallen in ten minutes, a record that the same quantity fell in one hour somewhere else, is beneath notice. It will not be easy to bring all these intense falls into suitable order for ascertaining the laws that govern them, but until that is done the more cases are reported the better.

Most Intense Rains, 1879—1888.

Date.	Div.	Station.	Amnt.	Duration.		Rate per hour.
			in.	hr.	min.	in.
1888 Mar. 24...	XI.	Chepstow, Shirenewton	·33	...	2	9·90
1879 June 24...	I.	Camden Square	·27	...	3½	4·63
1883 July 14...	I.	Camden Square ..	·40	...	5	4·80
1879 Aug. 17...	IX.	Sheffield, Sharrow	·31	...	5	3·72
1881 July 5...	II.	Brighton, Blatchington Road..	·46	...	5?	5·52?
1888 Aug. 21...	VIII.	Chelford, Astle Hall	·63	...	7	5·40
1886 July 21...	IX.	Ingleton, Hallsteads	·61	...	9	4·07
1879 Aug. 23...	XVII.	Midmar, Blackstock	·51	...	9	3·40
1885 Aug. 6...	IV.	Leyton	·70	...	10	4·20
1884 June 13...	VI.	Redditch	·77	...	12	3·85
1882 May 3...	VI.	Cheadle, Heath Ho.	1·00	...	12?	5·00?
1883 July 14...	I.	Camden Square	·68	...	13	3·15
1887 June 18...	XVIII.	Drumnadrochit	·77	...	15	3·08
1886 July 21...	VIII.	Liverpool, Walton-on-the-Hill	1·03?	...	15	4·12?
1885 July 12...	III.	Peterboro', Springfield	1·00	...	15	4·00
1879 June 30...	V.	Barnstaple, Arlington Court...	1·48	...	20	4·44
1888 June 25...	III.	Ely, Stretham.....	1·05	...	20	3·15
1884 July 5...	IV.	Hillington.....	·90?	...	20?	2·70?
1881 May 26...	XI.	Llandudno	1·18	...	25	2·83
1879 June 11...	VI.	Bishop's Castle	1·10	...	25	2·64
1884 Aug. 9...	VII.	Derby, Duffield	1·75	...	27?	3·89?
1880 July 22...	XI.	Cowbridge, Ash Hall.....	2·90	...	30	5·80
1883 June 30...	IX.	South Milford	1·71	...	30	3·42
1888 Sep. 24...	IV.	Lavenham Hall	1·50	...	30	3·00
1888 July 6...	V.	Babbacombe	1·47	...	30	2·94
1883 July 3...	VII.	Newark, East Stoke	1·45	...	30	2·90
1879 Aug. 5...	XXII.	Crossmolina, Enniscoe	1·42	...	30	2·84
1882 July 1...	V.	Bath	1·90?	...	30?	3·80?
1888 June 25...	XI.	Chepstow, Dannel Hill	1·35?	...	30?	2·70?
1888 July 5...	XI.	Ystalyfera	1·63	...	40	2·45
1884 July 4...	III.	Alconbury	1·90	...	45	2·53
1888 July 30...	IV.	Long Stratton	1·83	...	55	2·00
1886 July 25...	VIII.	Sale, Brooklands.....	2·58	1	0	2·58
1886 July 25...	IX.	Wakefield, Stanley.....	2·50	1	0	2·50
1888 June 26...	II.	Sevenoaks, Purleigh	2·00	1	0	2·00
1883 June 25...	VIII.	Broughton, Woodland Rectory	1·95	1	5?	1·79?
1886 July 25...	IX.	Denshaw, New Year's Bridge.	2·19	1	10	1·88
1880 June 25...	XXI.	Athlone, Twyford	3·07	1	15?	2·45?
1880 July 14...	III.	March	2·13	1	30	1·42
1883 June 14...	II.	Ashford, Westwell.. ..	2·65	1	30?	1·77?
1888 July 30...	IV.	Aylsham	3·09	1	40	1·85
1888 Aug. 1...	II.	Hawkhurst, Sandhurst ..	3·00	2	0	1·50
1880 Sep. 15...	IX.	Wath-upon-Deerne.....	3·00	2	0?	1·50

As all the cases quoted in the table are plotted on the diagram, which forms the frontispiece to the volume, it may be well to base our remarks chiefly on it.

At the bottom will be seen a shaded area. This includes falls which (as far as is at present known) are believed to be so common as to be unworthy of special tabulation.

Above that is a pecked line running through 1·10 in. in half-an-hour, and 1·80 in. in an hour, to 2·20 in. in two hours. Falls between the shaded space and this pecked line are usual every year. Some hundreds have been reported in the various volumes of *British Rainfall*.

But there are generally a few still more noteworthy, *i.e.*, which are above this pecked line. It is of these exceptional falls that I have given the list. They are all set out in the table, in which they are arranged according to duration, and they are all* so plotted on the diagram that each can be traced, as it is easily identified by three facts. Take for instance, the highest on the diagram. It is a fall which lasted 1 hour 40 minutes, and in which the fall was rather less than 3·10 in., and as it is marked by an 8, the terminal figure of the year, it must have been 1888, and running down the table to near the bottom will be found 1888, July 30, Aylsham, 3·09 in. in 1 hour 40 minutes ; and so of any other entry.

Above most of these entries will be noticed a dotted line. This (although I made the observations myself and therefore it sounds conceited to assert it), I believe to be the most remarkable rain record yet obtained in the British Isles, and the only perfect one of a very intense thunderstorm-rain yet produced. It is the result of readings made every half minute during the great thunderstorm in North London on June 23rd, 1878, when 2·20 in. fell in less than half-an-hour, and (omitting 34 minutes during which no rain fell) 3·28 in. fell in 56 minutes.

It must, of course, be remembered that this table concentrates all the most remarkable records from an aggregate of, perhaps, 20,000 yearly returns, *i.e.*, 2,000 a year for each of ten years.

Still, I suppose that few persons would have expected to see several records of the fall of *an inch* in less than 20 minutes, of *two inches* in an hour, and of *three inches* in two hours or less. And these are not cases of catching a waterspout: (unless at Scarborough in 1857)

* Except one or two crowded out.

no waterspout ever burst over an English rain gauge ; if it did, there are few gauges which would not be washed away.

On the other hand, let no one think that these falls are frequent ; they are not, not so frequent as earthquake shocks. These great downpours are very local, one or two square miles in area ; they rarely occur twice in one locality, and though Camden-square does appear thrice in the table that is explained by the fact of the existence of the storm gauge, which facilitates observations of this class, especially for short periods ; and, in spite of all, I have never seen a repetition of the fall of 1878.

One word, in conclusion, as to the frequency of these exceptional falls. Here is the list, which gives 1888 nearly twice as many as any of the other nine years :—

1879	1880	1881	1882	1883	1884	1885	1886	1887	1888
6	4	2	2	6	4	2	5	1	11

The final lesson to be drawn from the foregoing is that additional care should be given to the measurement of heavy rains during short periods.

EAST ANGLIAN RAINFALL, 1801 to 1888.

By F. DIX.

YEARLY.

	inches.
The average rainfall at Tottenham, 31 years, and at Epping, 7 years, 1801 to 1838, inclusive, first six months, 10·62 in. ; last six months, 14·40 in., registered at Tottenham by Luke Howard, and Epping by T. Squire	25·02
The average rainfall at Dickleburgh, 35½ years, to September, 30th, 1874, and 14¼ years to December, 1888, at Norwich (Essex Street), making 50 years, registered in South Norfolk by Francis Dix	24·42
The average rainfall in the East of England for 88 years, as above... ..	24·68
There were in the last 50 years 24 years in which the rainfall was above the average, eight years of which registered 30 inches and upwards, namely :—	

1841	1848	1860	1875	1877	1878	1879	1882
in.	in.	in.	in.	in.	in.	in.	in.
30·65	32·42	30·00	30·11	31·44	32·80	32·06	33·34

There were 26 years in which the rainfall was below the average, seven of which registered below 19 inches, namely :—

1840	1847	1855	1858	1863	1864	1868
in.	in.	in.	in.	in.	in.	in.
18·86	18·40	18·25	18·64	16·75	14·21	17·39

MONTHLY.

The monthly averages have been as follows :—

	1st Month. January.	2nd Month. February.	3rd Month. March.	4th Month. April.	5th Month. May.	6th Month. June.	7th Month. July.	8th Month. August.	9th Month. September.	10th Month. October.	11th Month. November.	12th Month. December.	First 6 Months.	Second 6 Months.	Year.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1801 to 1860	1·79	1·54	1·46	1·63	1·89	1·99	2·56	2·34	2·11	2·76	2·51	2·07	10·30	14·35	24·65
1839 to 1888	1·72	1·57	1·58	1·44	1·70	1·83	2·55	2·25	2·34	2·95	2·52	1·97	9·84	14·58	24·42

FIFTY YEARS' RAINFALL IN SOUTH NORFOLK, 1839 TO 1888 INCLUSIVE.

35½ years at Dickleburgh, 14½ years at Norwich.

REGISTERED BY FRANCIS DIX.

Year.	1st Month. Jan.	2nd Month. Feb.	3rd Month. March.	4th Month. April.	5th Month. May.	6th Month. June.	7th Month. July.	8th Month. August.	9th Month. Sept.	10th Month. October.	11th Month. November.	12th Month. December.	First six Months.	Last six Months.	Yearly Total.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1839	2.30	1.80	1.50	— .20	1.00	2.30	2.42	+2.90	2.48	2.20	2.56	2.30	9.80	14.86	24.66
1840	2.37	.74	.60	— .12	2.80	2.04	2.20	.90	2.82	1.30	+2.97	.20	8.47	10.39	18.86
1	2.00	1.40	1.40	— 1.20	1.75	1.85	4.00	2.55	3.25	+8.55	2.50	2.20	9.60	21.05	30.65
2	1.64	.95	3.20	— .63	1.50	2.68	2.17	1.65	3.60	2.28	+4.00	.76	10.50	14.46	24.96
3	1.50	2.10	1.00	1.75	8.54	2.19	2.14	+5.40	1.35	5.10	2.24	— .06	12.08	16.29	28.37
4	2.25	2.90	2.20	— .29	.44	1.79	2.70	2.68	1.24	+4.22	3.15	.80	9.87	14.28	24.15
5	2.80	— 1.15	1.77	1.54	3.71	1.35	2.55	+3.20	— 1.15	2.36	2.00	2.94	12.32	14.20	26.52
6	2.45	— .65	.88	+4.10	.96	1.08	1.55	2.67	1.65	2.62	1.70	2.02	10.12	12.21	22.33
7	1.00	— .85	1.00	1.50	1.32	1.90	1.40	1.08	1.62	+2.48	2.00	2.25	7.57	10.83	18.40
8	.92	2.80	3.40	2.58	— .30	4.04	2.70	2.84	4.68	+5.04	1.52	1.60	14.04	18.36	32.42
9	1.70	1.68	.53	1.95	+4.80	.68	2.25	— .42	1.62	2.70	1.85	3.70	11.34	12.54	23.88
1850	2.00	1.15	— .72	2.05	2.45	.80	+4.45	1.68	1.84	2.42	2.00	1.68	9.17	18.57	27.74
1	1.73	— .65	8.55	2.63	1.04	1.40	+3.80	2.08	— .65	2.64	2.90	.72	11.00	12.79	23.79
2	3.00	2.20	.27	.60	1.28	2.00	1.24	3.48	3.43	3.62	+4.02	— .10	9.30	16.89	25.19
3	2.04	2.68	.75	8.23	1.06	1.55	3.85	2.57	1.64	+4.65	1.65	— .70	11.36	15.06	26.42
4	1.50	.95	.95	.87	3.06	1.35	1.75	+4.55	— .82	2.65	2.90	2.90	8.68	15.37	24.05
5	1.00	.72	.36	— .00	1.70	1.62	+4.28	1.50	.33	4.00	2.04	.70	5.40	12.85	18.25
6	1.50	.80	— .30	1.00	2.65	.80	2.07	1.65	+2.80	2.25	2.65	1.48	7.05	12.90	19.95
7	1.70	— .00	.70	1.65	.82	3.00	2.00	2.40	3.85	+4.30	1.30	1.20	6.87	14.55	21.42
8	— .80	.45	.55	1.60	2.15	1.00	+4.14	2.50	.75	2.80	1.00	1.50	6.95	12.69	18.64
9	— .64	1.10	1.40	1.10	1.20	+3.35	1.80	2.60	2.76	2.95	1.50	2.25	8.79	13.86	22.65
1860	2.00	1.67	2.75	— .95	3.80	+4.68	1.85	3.83	2.20	1.68	2.54	2.05	15.85	14.15	30.00
1	.75	2.80	1.95	.60	.90	1.05	3.57	.70	1.45	— .36	+4.00	1.34	8.05	11.42	19.47
2	1.50	.96	+3.60	— .65	1.75	2.25	1.47	2.50	1.50	2.45	1.50	2.30	10.71	11.72	22.43
3	1.90	— .35	.98	.65	.82	2.43	.85	1.04	1.90	+2.75	2.25	.83	7.13	9.62	16.75
4	.70	.75	+2.52	— .27	2.00	1.25	.70	.95	1.56	.96	1.90	.65	7.49	6.72	14.21
5	2.55	2.10	2.85	.85	1.35	1.90	3.55	4.23	— .00	+6.67	1.30	.60	11.10	16.35	27.45
6	2.46	8.40	1.05	1.35	1.58	2.46	3.07	1.70	+3.80	— .53	3.15	2.10	12.30	14.35	26.65
7	2.85	1.38	1.55	2.50	2.67	— .42	+3.53	.95	2.45	2.05	.80	1.80	10.82	11.68	22.50
8	1.80	1.00	1.80	1.10	.65	.65	— .24	1.35	1.40	1.80	1.30	+4.30	7.00	10.39	17.39
9	1.56	2.10	2.48	1.05	2.10	1.85	— .50	1.95	3.14	2.00	2.05	+4.70	11.14	14.34	25.48
1870	1.07	.60	1.47	.60	— .50	1.00	1.85	2.65	1.58	2.90	.88	+4.25	5.24	14.11	19.35
1	.80	2.14	1.00	3.00	— .55	+3.40	2.45	.88	+3.40	1.80	1.40	1.53	10.89	10.96	21.85
2	2.13	— 1.60	2.40	2.10	1.73	2.62	+3.80	1.86	2.08	2.80	3.70	2.82	11.98	17.01	28.99
3	1.68	1.60	1.45	.86	2.20	2.22	1.85	.95	+2.70	2.63	.90	— .50	10.01	9.53	19.54
4	.90	.80	.65	1.05	— .65	2.30	1.02	1.88	+3.64	1.25	2.66	2.75	6.25	18.20	19.45
5	2.02	1.24	— .60	.87	1.80	1.45	6.07	.70	2.78	4.04	+6.90	2.20	7.48	22.63	30.11
6	2.38	3.15	2.45	2.98	— .53	1.81	2.20	1.55	+4.90	1.06	3.04	3.80	13.30	16.54	29.84
7	3.04	2.62	2.74	2.80	1.65	— 1.46	8.10	+4.35	3.08	1.88	2.57	2.70	18.81	17.63	31.44
8	2.07	1.05	1.20	1.26	3.90	1.44	— .75	5.94	2.41	2.01	+3.45	2.32	10.92	21.88	32.80
9	1.18	3.53	.97	2.55	2.23	3.20	+5.33	5.14	2.45	1.00	2.65	— .83	13.66	18.40	32.06
1880	.13	2.04	.92	1.42	.54	2.81	+4.78	2.40	2.25	4.78	2.22	2.30	7.86	18.68	26.54
1	1.32	+3.80	2.00	.80	— .70	1.45	1.52	3.70	8.02	3.24	2.16	3.14	10.07	16.78	26.85
2	1.97	1.72	— 1.22	3.07	1.55	3.27	3.02	1.65	2.47	+6.50	3.05	3.85	12.80	20.54	33.34
3	2.12	2.75	2.17	1.76	1.05	3.03	2.33	— .56	2.95	3.45	+3.58	3.15	12.88	16.02	28.90
4	1.50	.50	1.30	1.74	.84	— .34	2.45	1.00	3.05	+3.08	2.08	2.48	6.22	14.14	20.36
5	2.41	2.47	1.45	1.23	2.95	.95	.84	— .64	4.63	+6.84	3.18	1.43	11.46	17.54	29.00
6	2.65	— .30	1.38	1.35	2.44	.46	3.88	1.90	1.76	8.14	2.70	+4.12	8.58	17.50	26.08
7	1.80	.58	1.95	1.07	2.08	— .41	1.15	2.26	2.47	+2.66	2.24	1.38	7.89	12.16	20.05
1888	1.20	2.20	3.10	1.66	— .90	1.00	+4.24	2.20	1.88	2.11	2.80	1.10	9.96	14.33	24.29
Average	1.72	1.57	1.68	— 1.44	1.70	1.83	2.55	2.25	2.84	+2.96	2.62	1.97	9.84	14.58	24.42

In the above table, — and + indicate respectively the driest and wettest month in each year.

The least fall in each month during the whole period is printed in small type, e.g., for January .13 in 1880, and the largest fall in each month during the whole period in heavy type, e.g., for January 3.04 in 1877.

The monthly rainfall has been 4 inches and upwards 41 times in the 50 years, viz. :—

1st Month. January.	2nd Month. February.	3rd Month. March.	4th Month. April.	5th Month. May.	6th Month. June.	7th Month. July.	8th Month. August.	9th Month. September.	10th Month. October.	11th Month. November.	12th Month. December.	
0	0	0	1	1	1	8	6	3	12	5	4	=41 times.

The monthly rainfall has been as low as 0·50 inch and under as often as 31 times, viz. :—

1st Month. January.	2nd Month. February.	3rd Month. March.	4th Month. April.	5th Month. May.	6th Month. June.	7th Month. July.	8th Month. August.	9th Month. September.	10th Month. October.	11th Month. November.	12th Month. December.	
2	5	2	5	3	4	2	1	1	1	0	5	=31 times.

During the past fifty years three instances have occurred in which no rain has been registered during the month, namely :—

April, 1855, the drought lasting from March 24th to May 2nd = 40 days.
 Feb., 1857, „ „ Jan. 11th to March 13th = 62 days.
 Sept., 1865, „ „ Aug. 29th to Oct. 8th = 41 days.

The extremes in each month have been :—

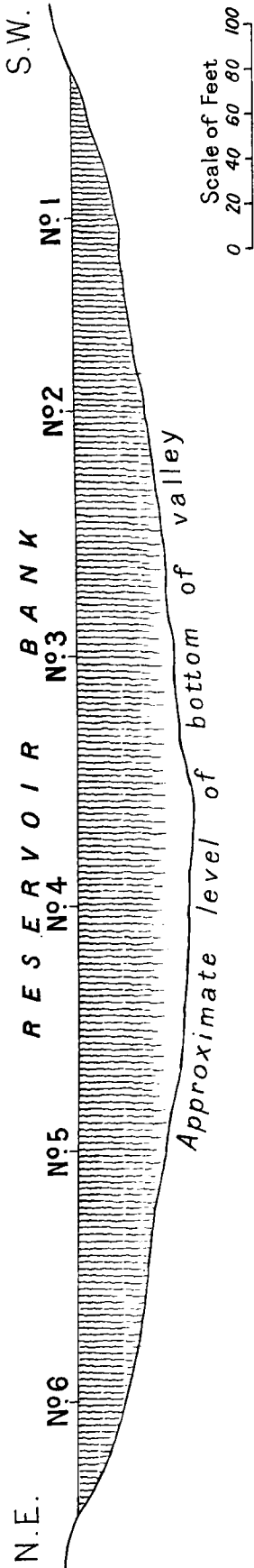
	1st Month. January.	2nd Month. February.	3rd Month. March.	4th Month. April.	5th Month. May.	6th Month. June.	7th Month. July.	8th Month. August.	9th Month. September.	10th Month. October.	11th Month. November.	12th Month. December.
Greatest ...	in. 3·04	in. 3·80	in. 3·60	in. 4·10	in. 4·80	in. 4·68	in. 6·07	in. 5·94	in. 4·90	in. 6·84	in. 8·45	in. 4·70
Least	·13	·00	·27	·00	·30	·34	·24	·42	·00	·36	·80	·06

ROTHERHAM EXPERIMENTAL GAUGES.

Having in previous volumes dealt fully with the five-mouthed and rotating gauges at Ulley Reservoir, Rotherham, I offer this year a few remarks upon the results of the elevation gauges now that they have been for six years reduced to the uniform elevation of five feet above the grass on the top of the reservoir bank. A plan to scale showing their precise positions having been given in *British Rainfall*, 1883, I have this year given a view instead of a plan, the reader being supposed to be in the valley looking from the N.W. towards the bank, which is S.E. of him. The bank, of course, runs transversely to the valley, and at its highest point is 50 feet above the original level of the valley, so that while when the reservoir is full, there is on the S.E. side of the bank water up to probably within five or ten feet of the top, if quite empty there would be at the deepest part a fall S.E. wards of 50 feet, and there is always a fall on the N.W. side increasing from *nil* at the S.W. and N.E. ends to 50 feet near the centre. The conditions are therefore somewhat the same as if a saddle-backed mound 50 feet high at its highest part were thrown up in a level plain with a series of gauges at intervals of 110 feet apart along the ridge. And the results are much like what such an arrangement would probably produce.

In the following table I give first the total amount of rain as measured by the gauges read daily, and whose orifices are all five feet above the ground, at the six points marked on the diagram, and for each of the six years during which they have been at work. Then follows the difference at each station, and for each year, from the mean of the two stations at the ends of the bank, *i.e.*, those at which the bank is but slightly above the general level of the ground.

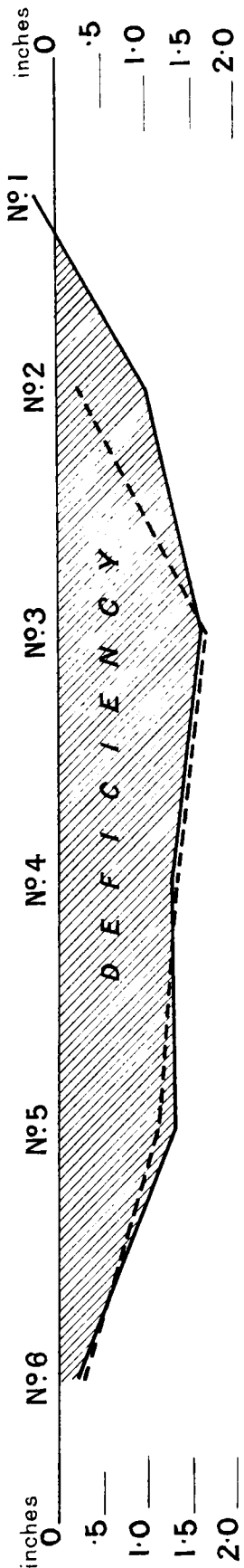
DECREASE OF RAINFALL DUE TO UNDUE EXPOSURE OF RAIN GAUGES ON A RESERVOIR BANK.



View of Bank looking from N.W.

RESULTS OF THE GAUGES AT THE POSITIONS MARKED ABOVE

— results of daily gauges
- - - - " " monthly "



DAILY GAUGES.

YEAR.	ACTUAL TOTALS.					
	Five mouthed	No. 2	No. 3	No. 4	No. 5	No. 6
	in.	in.	in.	in.	in.	in.
1883	24·80	23·00	21·97	22·71	22·11	23·44
4	15·01	13·99	13·73	13·55	13·39	13·98
5	20·17	19·49	19·37	19·72	19·55	20·56
6	24·76	23·94	24·01	24·33	24·05	25·26
7	14·32	13·35	12·60	12·87	13·35	14·27
1888	21·70	19·68	18·03	18·76	18·82	20·50
Mean	20·13	18·91	18·28	18·66	18·54	19·67

YEAR.	Mean No. 1 & No. 6	DIFFERENCES FROM MEAN AT No. 1 AND No. 6.					
		At No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
	in.	in.	in.	in.	in.	in.	in.
1883.....	24·12	+·68	-1·12	-2·15	-1·42	-2·01	-·68
4.....	14·50	+·51	-·51	-·77	-·95	-1·11	-·52
5.....	20·36	-·19	-·87	-·99	-·64	-·81	+·20
6.....	25·01	-·25	-1·07	-1·00	-·68	-·96	+·25
7.....	14·29	+·03	-·94	-1·69	-1·42	-·94	-·02
1888.....	21·10	+·60	-1·42	-3·07	-2·34	-2·28	-·60
Mean ...	19·90	+·23	-·99	-1·61	-1·24	-1·35	-·23

Then follows a table for the monthly gauges, similar to that for the daily ones, except that as there is no monthly gauge at station No. 1, it has not been practicable to give a table of differences precisely identical with that for the daily gauges.

MONTHLY GAUGES.

YEAR.	ACTUAL TOTALS.				
	No. 2	No. 3	No. 4	No. 5	No. 6
	in.	in.	in.	in.	in.
1883	24·41	22·48	22·15	22·46	23·66
4	15·51	14·06	13·47	13·76	14·57
5	20·81	18·90	19·70	20·13	20·26
6	23·85	23·64	24·42	24·05	25·38
7	14·04	13·01	13·11	13·00	13·75
1888	19·92	18·58	18·97	19·24	20·64
Mean.....	19·76	18·45	18·64	18·77	19·71

Now to revert to the diagram. The upper portion, as already explained, shows the positions. The lower portion shows the results on the mean of the six years, the continuous curve being the reproduction of the mean differences from the average of Nos. 1 and 6, as given in the above table. The dotted curve represents the corresponding values as computed from the gauges read monthly. Except for station No. 2, the agreement is very remarkable, and such as to leave no shadow of doubt respecting the reality of the decrease. At No. 2 it is curious that the daily and the monthly gauges both go away from what is probably the truth. If a line be drawn from station No. 3, where they are identical, to station No. 1, where also they are nearly identical, it would give for No. 2 —·80 in., whereas by the daily gauge at No. 2 we get —·99 in., and by the monthly —·25 in., one being ·19 in. too little, and the other ·55 in. too much ; therefore the mean of the two gauges at No. 2, as observed, differs from the theoretical value by only ·18 in.

These results are more accordant, and greater than, would have been expected without careful thought. In this country we are so accustomed to regard the S.W. as the rain-producing wind *par excellence* that the first impression would be that as the bank runs from S.W. to N.E., the fall of the ground to the N.W. would not have much effect, and the gauging would be nearly equal all along, perhaps decreasing slightly towards N.E. Why is the result so different? Firstly, it is necessary to remember that to reach Rotherham, a cloud coming from S.W. has had to traverse nearly 200 miles of land, including the mountains of central Wales, and afterwards, just before reaching Rotherham, the high district (1,500 feet and more) of the Peak of Derbyshire. Hence at Rotherham the S.W. can hardly be a rainy quarter, and the five-mouthed gauge proves it, for it shows (to take only two years) in 1887 the most rain from N.N.E., and in 1888 from N.E. This of course does not help much ; this excess of N.E. is not very great, had it been, it would have left the anomaly unexplained, for it would still have been parallel with the bank, but being small, we may perhaps not unfairly consider that at Ulley Reservoir the rain from each quadrant is nearly equal. Secondly, it is well known that valleys always divert wind currents from their normal path, and generally render them nearly parallel with their axis ; that would be at right angles to a bank such as this one, thrown across a valley to impound the stream which originally found its way down the bottom of the valley. This

seems to me the probable explanation; a wind transverse to the bank would cause the amount collected to decrease with the height of the bank above the valley, this decrease would become greater from the sides towards the middle, and that is exactly what the observations show.

**RAIN GAUGE EXPERIMENTS, ULLEY RESERVOIR,
ROTHERHAM, 1888.**

Lat. 53° 22' 59" N. Lon. 1° 19' 9" W. Altitude 184 ft.

Months.	FIVE MOUTHED GAUGES. 5 ft. above ground.					INCLINED 5 ft. above ROTATING GAUGES. ground.			
	Facing East.	Facing North.	Facing West.	Facing South.	Horizon Centre.	22½°	45°	67½°	90°
January	·439	·337	·260	·528	·574	·850	1·152	1·306	1·353
February.....	·650	2·223	·293	·022	·665	1·739	3·249	3·683	3·257
March	3·029	1·329	·597	1·366	2·243	3·242	4·370	5·179	5·934
April	·679	1·219	·430	·536	2·092	2·430	2·753	2·551	2·217
May	·226	·005	·158	·639	·533	·662	·795	·853	·905
June	·757	·761	·396	·640	2·125	2·486	2·557	2·374	1·730
July	2·076	1·662	·670	1·147	4·339	5·028	5·482	5·073	4·152
August	·605	·849	·630	·571	2·102	2·327	2·558	2·384	1·944
September ...	·123	·915	·244	·200	1·084	1·341	1·496	1·352	1·165
October	·044	·419	·168	·211	·412	·543	·688	·704	·680
November ..	5·540	3·982	1·702	2·605	3·999	6·100	8·683	9·548	9·552
December ...	·716	2·505	·405	1·156	1·536	1·863	2·226	2·191	3·045
Year	14·884	16·206	5·953	9·621	21·704	28·611	36·009	37·198	35·934

Months.	POSITION NO. 1. 1 ft. above ground.			POSITION NO. 2. 5 ft. above ground.			POSITION NO. 3. 5 ft. above ground.		
	Read Daily.	Read Mnthly.	Diff.	Read Daily.	Read Mnthly.	Diff.	Read Daily.	Read Mnthly.	Diff.
January	·484	·539	+·055	·393	·554	+·161	·359	·370	+·011
February.....	·867	·873	+·006	·372	·559	+·187	·334	·500	+·166
March	2·302	2·251	—·051	2·279	1·932	—·347	1·694	1·682	—·012
April	2·009	2·026	+·017	2·170	1·920	—·250	1·787	1·850	+·063
May	·546	·431	—·115	·444	·487	+·043	·402	·388	—·014
June	2·118	2·296	+·178	2·009	2·096	+·087	1·927	1·976	+·049
July	4·527	4·730	+·203	4·094	4·200	+·106	3·912	4·016	+·104
August	2·035	2·068	+·033	1·871	1·917	+·046	1·765	1·820	+·055
September ...	1·107	1·174	+·067	1·002	1·049	+·047	·961	1·025	+·064
October	·424	·483	+·059	·382	·409	+·027	·353	·441	+·088
November ...	3·900	3·816	—·084	3·233	3·348	+·115	3·157	3·158	+·001
December ...	1·627	1·691	+·064	1·431	1·452	+·021	1·375	1·358	—·017
Year	21·946	22·378	+·432	19·680	19·923	+·243	18·026	18·584	+·558

Months.	POSITION No. 4. 5 ft. above ground.			POSITION No. 5. 5 ft. above ground.			POSITION No. 6. 5 ft. above ground.		
	Read Daily.	Read Mnthly.	Diff.	Read Daily.	Read Mnthly.	Diff.	Read Daily.	Read Mnthly.	Diff.
January	·379	·391	+·012	·376	·390	+·014	·387	·500	+·113
February	·511	·524	+·013	·680	·625	—·055	·793	·725	—·068
March	1·852	1·864	+·012	1·853	1·863	+·010	2·165	2·160	—·005
April	1·810	1·835	+·025	1·814	1·926	+·112	1·924	1·895	—·029
May	·395	·377	—·018	·370	·384	+·014	·382	·360	—·022
June	1·986	1·976	—·010	1·985	1·994	+·009	2·073	2·014	—·059
July	3·984	4·098	+·114	4·046	4·076	+·030	4·280	4·325	+·045
August	1·788	1·756	—·032	1·679	1·792	+·113	1·882	1·916	+·034
September ...	·991	·998	+·007	1·030	1·078	+·048	1·082	1·100	+·018
October	·360	·369	+·009	·383	·405	+·022	·404	·405	+·001
November ...	3·309	3·336	+·027	3·226	3·300	+·074	3·710	3·778	+·068
December ...	1·395	1·441	+·046	1·380	1·406	+·026	1·415	1·460	+·045
Year	18·760	18·965	+·205	18·822	19·239	+·417	20·497	20·638	+·141

THE CAMDEN SQUARE EVAPORATION EXPERIMENTS.

No alteration has been made in the tank or in its position, and as the details have been given in previous volumes, it is here necessary to state only the rough outlines, namely, that a galvanized iron tank 6 ft. square and 2 ft. deep is sunk 1 ft. 8 in. deep in a grass plot. The tank holds about 450 gallons, and the mode of measurement is so delicate that a variation of 1-100th of an inch in the level of the water is easily read off.

The values given in the following table are generally less than those for previous years, and this is specially noticeable during July; the total for the year 1888 was 15 per cent. less than in the least of the three previous years.

The + in the following table shows that on that day, instead of loss by evaporation, there was gain by condensation.

DAILY EVAPORATION AT CAMDEN SQUARE, FROM JULY, 1888,
TO JUNE, 1889.

1888.

1889.

Date.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	·08	·02	·06	·04	·00	+ ·01	·00	+ ·01	·02	·04	·01	·10
2	·04	·06	+ ·03	·02	·03	·01	·00	·00	·00	·07	·00	·12
3	·07	·05	·04	·02	·00	·01	·01	+ ·02	·00	·02	·07	·16
4	·04	·06	·04	·03	·03	·00	·00	·03		·03	·07	·12
5	·04	·09	·03	·04	·01	·00	·02	+ ·01	·03	·02	·09	·17
6	·05	·03	·07	·02	·05	·01	·02	+ ·00	·03	·04	·13	·17
7	·00	·08	·07	·04	·01	·01	·02	·01		·04	·08	·11
8	·06	·09	·07	·04	·04	+ ·01	+ ·03	·02		·03	·09	·05
9	·07	·08	·03	·03	·01	·01	+ ·02	·08	+ ·01	·01	·04	·05
10	·10	·12	·04	·01	·02	·00	·01	·08	·02	+ ·01	·06	·00
11	·05	·06	·04	·01	·00	·00	·00	·03	·02	+ ·03	·01	·01
12	·02	·09	·03	·04	+ ·01	·00	+ ·02	·03	·03	·01	·03	·05
13	·09	·13	·06	·04	·01	·00	+ ·01	·03	·03	·02	·05	·05
14	·03	·08	·01	·05	·01	+ ·02	·00	+ ·01	·04	·02	·02	·03
15	·00	·08	·03	·04	·00	+ ·01	·02	·02	·02	·03	·06	·03
16	·03	·07	·04	+ ·01	·00	·00	·01	+ ·04	·01	·05	·08	·12
17	+ ·05	·08	·05	·00	+ ·01	·00	·00	·02	·03	·02	·05	·09
18	·01	·06	·03	·01	·02	+ ·01	·02	·00	·03	·03	·05	·11
19	·03	·04	·05	·01	·01	·00	+ ·02	·01	·02	·07	·01	·14
20	·02	·01	·07	·02	·06	·00	·01	·00	·02	·06	·06	·12
21	·08	·05	·04	·02	·01	·00	·00	·02	·02	·06	·06	·12
22	·08	·07	·02	·00	·01	·00	·00	·00	·03	·05	·09	·12
23	·08	·00	·03	·01	·03	·00	·01	·00	·02	·03	·04	·13
24	·07	·05	·01	·00	·00	+ ·01	·00	·00	·03	·01	·08	·08
25	·00	·03	·03	·00	·04	·00	·01	·00	·04	·03	·07	·09
26	·09	·05	·05	·00	·02	·01	·00	·01	·02	·06	·00	·14
27	·06	·02	·02	·01	·02	·01	·00	·00	·05	·03	·02	·13
28	·07	·09	·02	·04	·00	·00	·00	·02	·02	·03	·06	·09
29	·04	·04	·03	+ ·02	·01	·00	+ ·01	...	·03	·08	·11	·09
30	·06	·05	·09	·04	·00	·02	·00	...	·02	·07	·09	·18
31	·03	·07	...	·00	...	·01	...	...	·03	...	·12	...
Total	1·44	1·90	1·17	·60	·43	·03	·03	·18	·62	1·07	1·76	2·97
Max.	·10	·13	·09	·05	·06	·02	·02	·04?	·05	·08	·13	·18

TOTAL.

	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	T.
1885.	·20	·38	·86	1·71	1·98	2·77	3·29	2·25	1·13	·77	·17	·11	15·62
1886.	·23	·13	·53	1·59	1·78	2·93	3·12	1·86	1·46	·63	·27	·12	14·65
1887.	+ ·07	·29	·76	1·72	1·79	3·68	3·76	2·54	1·25	·78	·21	·07	16·78
1888.	·07	·37	·48	1·16	2·71	2·24	1·44	1·90	1·17	·60	·43	·03	12·60
1889.	·03	·18	·62	1·07	1·76	2·97							

MAXIMUM.

	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	T.
1885.	—	·04	·06	·12	·15	·14	·17	·14	·11	·05	·02	·04	
1886.	·01	·04	·08	·12	·15	·16	·22	·13	·10	·07	·04	·04	
1887.	·04	·05	·06	·11	·14	·23	·18	·16	·08	·05	·05	·02	
1888.	·04	·04	·05?	·09	·17	·17	·10	·13	·09	·05	·06	·02	
1889.	·02	·04?	·05	·08	·13	·18							

RAINFALL AT THE ROYAL OBSERVATORY, GREENWICH.

Lat., 51° 28' 38" N.

Long., 0° 0' 0".

Communicated by W. H. M. CHRISTIE, Esq., M.A., F.R.S.,
Astronomer Royal.

1888	No. of days on which rain fell.	MONTHLY AMOUNT OF RAIN COLLECTED IN EACH GAUGE.							
		Osler's Anemometer.		On roof of Octagon Room.	On roof of Magnetic House.	On roof of Photographic Thermometer Shed.	Gauges partly sunk in the ground.		
		Self-registering Gauge.	Second Gauge.						
Height above Ground. }	...	50ft. 8in.	50ft. 8in.	38ft. 4in.	21ft. 6in.	10ft. 0in.	5in.	5in.	5in.
Height above Mean Sea Level. }	...	205ft.	205ft.	193ft.	176ft.	165ft.	155ft.	155ft.	155ft.
January	11	in. .472	in. .508	in. .657	in. .822	in. .832	in. .893	in. .909	in. .916
February	15	.428	.453	.556	.706	.835	.894	.892	.883
March	21	1.627	1.715	2.084	2.388	2.655	2.782	2.778	2.801
April	14	.848	.859	1.166	1.482	1.518	1.507	1.475	1.527
May	5	.336	.338	.478	.617	.632	.646	.648	.684
June	15	2.385	2.611	2.966	3.200	3.355	3.356	3.199	3.315
July	26	5.397	5.680	6.019	6.419	6.705	6.748	6.525	6.669
August	12	2.627	2.718	3.157	3.652	3.789	3.734	3.716	3.726
September	12	.382	.409	.558	.739	.783	.729	.690	.730
October	6	.921	.964	1.153	1.318	1.376	1.296	1.300	1.313
November	18	2.804	2.874	3.547	3.707	3.976	4.001	4.004	4.125
December	10	.425	.427	.631	.776	.918	.919	.862	.961
Sums	165	18.652	19.556	22.972	25.826	27.374	27.505	26.998	27.650
No. of Gauge ...	...	1	2	3	4	5	6	7	8

A rainy day is considered to be one on which 0.005 in., or more, is collected in gauge No. 6. Of the ground gauges 6, 7, and 8, No. 6 is taken as standard, No. 7 is the old monthly gauge, and No. 8 is a gauge added in 1881.

May 4, 1889.

WILLIAM ELLIS,
For the Astronomer Royal.

THE STAFF OF OBSERVERS.

Perhaps the title of this section might more appropriately be the roll call—for that is what it really is—the roll of every station's name which has disappeared from the general tables as they stood for 1887, and a list also of all the new ones inserted.

We have just been trying a fresh calculation. This list of gains and losses looks a long one, and we have been testing it, and the proportion which the variables are to the long standing stations; and with the variables it must be remembered are grouped *all* omitted records, whether through removal, illness, death, or any accident to the gauge, or interruption whatsoever. The total of absentee records is 194, which out of 2,555 in 1887 is about 1 in 13—and this, which is the proportion for the whole, is also nearly uniform in the various parts. One would, of course, prefer to have no absentees and no accidents at all, but considering the many vicissitudes of life, the proportion seems to us remarkably small.

The new records are again more numerous than the losses, so that the staff is still increasing, but not rapidly, and the chief increase is in England, where it is least needed. However, as will be seen from the following table, there is an increase of 10 in the Scotch returns, which is very satisfactory. The increase for the year is 35, which brings the total number of perfect records up to 2,590 :—

Number of perfect rainfall records published in the volumes of British Rainfall for the undermentioned years :—

Years.	England.	Wales.	Scotland.	Ireland.	Gross Total.
1860.....	163	5	—	—	168
1861.....	334	9	109	20	472
1871	1038	88	311	67	1504
1881.....	1548	131	313	153	2145
1882.....	1710	145	335	148	2338
1883.....	1785	145	357	146	2433
1884.....	1812	143	353	155	2463
1885.....	1825	161	346	154	2486
1886.....	1835	155	344	154	2488
1887.....	1890	164	343	158	2555
1888.....	1917	161	353	159	2590
Difference from 1887—					
Increase	27	—	10	1	35
Decrease	—	3	—	—	—

There does not appear to be anything so remarkable in the sites of the new stations as to call for special notice here. Some are old records turned out in 1887 for some imperfection and now re-admitted, and some are new ones recently started, and a few are old-established records, of which, in spite of all our efforts, we had not previously heard.

MIDDLESEX (55).

ABSENT RECORDS.

Chiswick (Pumping Station)—*No reply.*
 Perivale (Sewage Farm)—*Return not received.*
 Holloway (Manor Road)—*Record ceased.*
 Highgate (Nurseries)—*No reply.*

INSERTIONS.

Staines.
 Twickenham (Holy Trinity Vic.)
 Westminster (Spring Gardens).
 London'' (Savile Row, W.)
 Finsbury Park (Endymion Ter.)
 Tottenham.
 Friern Barnet Sewage Works.
 Whetstone.

SURREY (79).

Reigate (Springfield)—*Record imperfect.*
 Reigate Hill—*Record ceased.*
 Titsey (Botley Hill)—*Record ceased.*
 Chipstead (Parson's Green)—*Record ceased.*
 Chelsham (Henley)—*Record ceased.*
 Epsom (Campville)—*No reply.*
 Croydon (Coombe Lane)—*Record ceased.*
 Beddington—*Gauge moved.*
 Chertsey (Long Cross)—*Record imperfect.*
 Forest Hill (Border Lodge)—*Record imperfect.*

Shere (Hound House).
 Dorking (Fir Tor).
 Red Hill (Beech House).
 Caterham Asylum.
 Camberley (Heathcote).
 Kenley (Ingleside).
 Chobham.
 Weybridge Heath (Bartropps).
 Esher Sewage Works.
 Carshalton (The Wrythe).
 Chertsey (Burley Orchard).

KENT (87).

Acrise Place—*Observer moved.*
 Maidstone (Lower Tovil)—*Record imperfect.*
 Bicknor Rectory—*No reply.*
 Sittingbourne (Rodmersham)—*Record ceased.*
 „ (Hartlip Place)—*Record ceased.*
 Sheppey (Greenborough)—*Record unreliable.*
 Beckenham (West Wickham)—*Record ceased.*
 Lee (Blessington Road)—*Record ceased.*
 Shooter's Hill—*Record ceased.*
 Deptford (Pumping Station)—*Record imperfect.*
 Erith (Crossness) (3rd g.)—*Record imperfect.*

Rolvenden (Hole Park).
 Benenden Vicarage.
 Dover (Randolph Gardens).
 Sevenoaks (Purleigh).
 „ (Chevening Gardens).
 Aylesford (Preston Hall).
 Lynsted (The Batteries).
 Keston (Bradfield).
 Bickley (The Pines).
 Eltham (Victoria Road).
 Woolwich.

WEST SUSSEX (23).

Midhurst (Cocking)—*Record ceased.*
 Horsham (Rusper) (2nd g.)—*Record ceased.*

Worthing Infirmary.
 Arundel (Patching).
 Bramber (Maudlin).

EAST SUSSEX (53).

Lewes (Southmalling) (2nd g.)— <i>Record imp.</i>	Eastbourne (East Dean).
Hurstpierpoint (Danny Park)— <i>No reply.</i>	„ (Wilmington Square).
Fletching (Sheffield Park)— <i>No reply.</i>	Brighton (Kemp Town).
East Grinstead (The Hermitage)— <i>Record ceased</i>	Warbleton Rectory.
	Waldron (Bryckden).
	„ „ „
	Cuckfield.
	East Grinstead (Old Stone House).

HAMPSHIRE (69).

Yarmouth (The Towers)— <i>Observer moved.</i>	Bournemouth (Queen Anne Gardens).
Alresford (Ropley)— <i>No reply.</i>	Lymington (Pennington).
Alton (East Worldham)— <i>Record ceased.</i>	Portsmouth (Fort Cumberland).
Whitchurch (North Litchfield)— <i>No reply.</i>	Botley (Hall Court)
Crondall (Warren Corner)— <i>Record ceased.</i>	Southampton (Red Lodge) (2nd g.)
Farnborough Grange— <i>Record ceased.</i>	Droxford (Fir Hill).
	Liphook (White Hill Chase).
	Heckfield (Park Corner).

BERKS (22).

Newbury (Greenham)— <i>Observer dead.</i>	Old Windsor (Friary Gardens).
	Newbury (Weston).
	Long Wittenham.

HERTS (37).

Hertford— <i>Record ceased.</i>	Hemel Hempstead (Apsley Mills).
Stevenage (Knebworth Rec.)— <i>Record ceased.</i>	St. Albans (Torrington House).
Baldock (Toggs Clothall)— <i>Record ceased.</i>	

BUCKS (16).

Slough (Langley Field)— <i>No observations.</i>	High Wycombe.
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OXFORD (29).

Oxford (Toot Baldon Vic.)— <i>Record ceased.</i>	Oxford (Portlands, Baldon).
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NORTHAMPTON (37).

Northampton (The Hollys)— <i>Record ceased.</i>	Oundle.
Oundle (Talbot Hotel)— <i>Record ceased.</i>	
Peterborough (Springfield Ho.)— <i>Record ceased</i>	

HUNTS (5).

St. Neots (Waresley Park).

BEDFORD (22).

Amphill (Haynes Park)— <i>Observer moved.</i>	Woburn (Experimental Farm).
Cardington (2nd gauge)— <i>Record imperfect.</i>	Biggleswade (Langford).
	Bedford (Kimbolton Road).
	„ (St. Peter's Parish).
	Podington [Wellingborough].

CAMBRIDGE (27).

Odsey Grange No. 2 [Royston]— <i>Record ceased.</i>	
„ No. 1 [„]— <i>Record ceased.</i>	
Chatteris (Slade Farm)— <i>Observer dead.</i>	

ESSEX (34).

Romford (North Ockendon Rec.)— <i>G overflowed</i>	Southend (Water Works).
Manningtree (Lawford)— <i>No reply.</i>	Waltham Abbey (Gunpowder Fac.).
	Chelmsford (Broomfield).
	Langham Rectory.

SUFFOLK (36).

Leiston (Alma Cottage)— <i>Record ceased.</i>	Ipswich (Woolverstone).
	Sudbury.
	Swilland Vicarage.
	Stradbroke Vicarage.
	Lowestoft (Gisleham).
	„ (The Clyffe, Corton).

NORFOLK (58).

Long Stratton (Hapton)— <i>Return not received.</i>	North Lopham.
Norwich (Thorpe)— <i>Observer moved.</i>	Brandon (Santon).
„ (St. Catherine's Close)— <i>Record ceased</i>	Saxlingham Nethergate.
Mattishall— <i>Return not received.</i>	Yarmouth.
South Walsham— <i>Record imperfect.</i>	Norwich (Postwick).
North Walsham (Worstead)— <i>Record ceased.</i>	„ (Newmarket Road).
Hillington Rectory— <i>Record imperfect.</i>	Drayton.
Fakenham (Cranmer Hall)— <i>Record imperfect.</i>	Bylaugh Park Gardens.
North Walsham (Knapton)— <i>Record ceased.</i>	Reepham (Whitwell).
	Fakenham (Croxtan).
	Holkham (2nd gauge).

WILTS (52).

Calne (Compton Bassett)— <i>Record imperfect.</i>	Tisbury.
	Maiden Bradley.
	Ludgershall (Chute).
	„ (Conholt Park).
	Great Bedwyn.
	Highworth (Hannington).

DORSET (25).

Abbotsbury— <i>Record imperfect.</i>	Weymouth (Wyke Regis).
Wareham (Trigon)— <i>No reply.</i>	Swanage.
Westbourne [Bournemouth]— <i>Observer dead.</i>	Maiden Newton (Cattistock Lodge).
	Hazelbury Bryan Rectory.

DEVON (91).

Kingsbridge (Ringmore)— <i>Record ceased.</i>	Revelstoke (Membland).
Totness— <i>No observation.</i>	Dittisham (Chipton).
Walkhampton (Lowery) (2nd g.)— <i>Rec. ceased.</i>	Brixham (Greenway).
Starcross (Powderham Castle)— <i>Rec. unreliable</i>	Torquay (The Rosery).
Exeter (Hospital)— <i>Observer dead.</i>	Abbotskerswell (Court Grange)
Bradinch Vicarage— <i>Record ceased.</i>	Chudleigh (Oaklands).
„ „ — <i>Record ceased.</i>	„ (Trusham).
Tiverton (Rose Bank)— <i>Record ceased.</i>	Christow (Torquay W.W.)
	Bideford Water Works.
	Barnstaple (Pilton).
	Lynton (Parracombe).

CORNWALL (35).

Penzance (South Parade)— <i>Record ceased.</i>	Helston.
„ (Poltair).— <i>Record imperfect.</i>	Redruth (Trevince).
St. Austell (Polcarne)— <i>Record ceased.</i>	Truro (Penarth).
Launceston (South Petherwin)— <i>Record imp.</i>	
„ (Hexworthy)— <i>Record ceased.</i>	

SOMERSET (44).

Wellington (Sunnyside)— <i>Record ceased.</i>	TempleCoombe(Stowell Rec.) 2nd g.
Radstock (Downside)— <i>Record imperfect.</i>	Glastonbury (High Street).
Highbridge (East Brent)— <i>Record ceased.</i>	Bridgwater (Victoria Terrace).
Bath (Queen's Parade)— <i>Record ceased.</i>	Wells (Westbury).
Bristol Docks (Underfall Yard)— <i>Record imp.</i>	Pensford (Sutton Court).

GLOUCESTER (52).

Westbury-on-Severn Vicarage— <i>Record ceased.</i>	Wirewoods Green [Chepstow].
	Cheltenham (Sandford Mead).

HEREFORD (24).

Hereford (Mansion House)— <i>No reply.</i>	Weobley (Dilwyn).
„ (Burghill, Portway)— <i>Record ceased.</i>	Bromyard (Buckenhill).
Leominster Farm— <i>No reply.</i>	Wigmore.

SHROPSHIRE (27).

Bishops Castle (More Rectory)— <i>Record ceased.</i>	Ludlow (Dinham).
Oswestry (Park Avenue)— <i>Record ceased.</i>	Wem (The Clive Vic.)
Whitchurch (Green End)— <i>Record unreliable.</i>	

STAFFORD (33).

Burslem— <i>Record ceased.</i>	Alrewas.
Ilam Hall [Ashborne]— <i>Record imperfect.</i>	Burton (Rangemoor).
	Market Drayton (Old Springs).
	Leek (Rudyard).

WORCESTER (30).

Worcester (Wick Episcopi)— <i>No reply.</i>	Worcester Water Works.
Droitwich (Ombersley)— <i>Record ceased.</i>	Bromsgrove (Lower Bittal Res.)
Bromsgrove(Upper Bittal Res.)— <i>Record ceased.</i>	Kidderminster (Woodfield).

WARWICK (24).

Stratford-on-Avon (Avonside)— <i>Record ceased.</i>	Stratford-on-Avon (Guild Street).
Birmingham (The Monument)— <i>No reply.</i>	

LEICESTER (25).

Leicester (Town Museum)— <i>Record ceased.</i>	Fleckney.
	Ratcliffe College.

RUTLAND (8).

Skegness.
Spilsby (Partney).
Lincoln.
Farforth (Maidenwell House).
Louth (Withcall).

Nottingham (Park Hill)—*Record ceased.*
 „ (Gedling)—*Record ceased.*

Nottingham (The Castle).
Newark (East Stoke).
Southwell.

Chesterfield (Grassmoor Colliery)—*Rec. ceased.*
Norton (Chantrey Grange)—*No reply.*

Bretby (Geary House).
Derby (Etwall).
„ (Holmside, Hazelwood). 2nd g.

Tarporley (Cote Brook)—*Gauge tampered with.*
Winsford (Meadow Bank)—*No reply.*
Macclesfield (Capesthorpe)—*Record ceased.*
Northwich (Winnington)—*Gauge moved.*
Stockport (Cheadle Hulme)—*Observer moved.*
Lymm (Arden Hall)—*Record ceased.*

Baddiley (Nantwich W.W.)
Frodsham (Fox Hill).
Wilmslow (Poplar House).
Hoylake (The Chase East).

Walton (Breeze Hill)—*2nd g.—Return not recd.*
 Manchester (Withington)—*No. 1—Rec. ceased.*
 „ (St. Bede's College)—*Record imp.*
 Ashton (Knott Hill)—*Return not received,*
 Chorley (Shaw Hill)—*Record ceased.*
 Blackpool (Arnold House)—*Observer dead.*
 Broughton-in-Furness—*Gauge inaccurate.*
 Coniston (Torver Rectory)—*No observations.*

Bolton-le-Moors (Moss Bank).
Blackpool.
St. Michael's-on-Wyre (No 1) M.
Quernmore (Brow Top).

WEST RIDING (186).

Wath-upon-Dearne—*No reply.*
Greenfield (Yeoman Hay)—*Return not recvd.*
Wakefield (Woolley)—*Record ceased.*
" (Stanley Vicarage)—*Record ceased.*
Halifax (Moorside)—*No observations.*
Shipley (Esholt Vic.)—*Observer moved.*
West End—*Return not received.*
Sedburgh (Wesley Villa)—*Observer moved.*

Standedge (Red Brook).
 Doncaster (Owston) M.
 Pontefract (Fern Hill).
 Hebden Bridge.
 Bradford (Brown Royd Res.)
 Leeds (Elmete Hall, Roundhay).
 York (Bootham).
 Harrogate (Service Reservoir).
 " (Haverham Park Res.)
 Ingleton (Halsteads). 2nd q.

Beverley (Cherry Burton)—*Record ceased.*

Hull (Westcott Street).
Driffeld (York Road).

NORTH RIDING (36).

Helmsley— <i>Record ceased.</i>	| Scarborough (West Bank).
Redcar (High Cliffe, Coatham)— <i>Record ceased.</i>	

DURHAM (33).

Yarm (Eaglescliffe Rectory)— <i>Record unreliable</i>	Darlington (Dinsdale Rectory). „ (Brinkburn).
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NORTHUMBERLAND (42).

North Shields (Monkseaton)— <i>Record imp.</i>	Newcastle (Gladstone Terrace). Alnwick (Glanton Pyke).
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CUMBERLAND (67).

The Sty (New S.E. gauge) M— <i>Record imp.</i>	Penrith (Culgaith Vicarage)
Rosthwaite (Castle Lodge)— <i>Record ceased.</i>	
Armboth Fells (The Pewitts)— <i>Record imp.</i>	
Helvellyn (Whiteside)— <i>Record imperfect.</i>	
Keswick (Newlands)— <i>Record ceased.</i>	
Carlisle (Scaleby Hall)— <i>Record imperfect.</i>	

WESTMORELAND (31).

Kendal (Underfell) No. 1— <i>Gauge worn out.</i>	| Witherslack (Halecote). Kendal (Natland Park). Grasmere (Pavement End). Ullswater (Swarth Fell).
Ambleside (Strawberry Bank)— <i>Record ceased.</i>	
„ (Kirkstone Pass)— <i>Record ceased.</i>	
Haweswater (Mardale Green, 2nd g.)— <i>Rec. im.</i>	
„ (Naddle Forest)— <i>Record ceased.</i>	
Ullswater (Sharrow Bay)— <i>Record ceased.</i>	
„ „ „— <i>Record ceased.</i>	
Milburn— <i>No observations.</i>	

WALES.

MONMOUTH (18).

Newport (Gold Tops)— <i>Observer moved.</i>	| Caerleon (Coldra). Llangibby Rectory. Monmouth (The Hendre).
Chepstow (The Mount)— <i>Record unreliable.</i>	

GLAMORGAN (26).

|	Cowbridge (Fonmon Castle).
	Cardiff (Llanishen Res.)
	Pontypridd (Craig-y-nos Res.)
	Neath (Cadoxton).

CARMARTHEN (7).

	Clynderwen House.
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PEMBROKE (8).

CARDIGAN (5).

Llechryd (Fernhill)— <i>Record ceased.</i>	
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BRECKNOCK (14).

Brecknock—*Observer dead.* |

RADNOR (10).

| Disserth (Glanhowey).

MONTGOMERY (12).

Garthbibio (Rhos-y-perfedd)—*Record ceased.* |Pont Dolanog—*Return not received.* |Llansaintffraid—*Return not received.* |Llanwddyn (Daffrn-newydd)—*Record ceased.* |

Welshpool (Powys Castle).

FLINT (7).

DENBIGH (14).

Wrexham (Brymbo)—*Gauge moved.* |

MERIONETH (6).

| Rhiwbryfdir.

CARNARVON (13).

ANGLESEA (3).

Bodewryd (Rhosybol)—*Record imperfect.* |

ISLE OF MAN (12).

St. Marks—*Observer ill.* |

ISLES OF SCILLY (2).

JERSEY (2).

GUERNSEY (2).

Villa Carey—*Record imperfect.* |,, —*Record imperfect.* |

SCOTLAND.

WIGTON (5).

| Loch Ryan Lighthouse.

KIRKCUDBRIGHT (9).

DUMFRIES (12).

Annan (Kinmount)—*Record ceased.* |

Dumfries (Ivy Bank).

Canobie (Byreburnfoot).

Moniaive (Maxwelton House).

,, (,, Garden).

ROXBURGH (9).

Hawick (Kirkton)—*Record ceased.* |

SELKIRK (2).

Borthwickbrae [Hawick]—*Record ceased.*
 Selkirk (Bowhill)—*Record imperfect.*

PEEBLES (7).

BERWICK (7).

| Coldstream (Milne Graden).

HADDINGTON (4).

EDINBURGH (27).

Moorfoot Hills (Bowbate)—*Record imperfect.* | Dalmahoy.
 Pentland Hills (Hare Hill)—*Record imperfect.* | Portobello (Joppa).
 | Edinburgh.

LINLITHGOW (2).

| Linlithgow (Rockville).

LANARK (9).

Biggar (Wiston)—*Record imperfect.* | Douglas (Newmains).
 | Glasgow.

AYR (19).

Dalry (Blair Park)—*No observations.* | Maybole (Culzean Gardens).
 | Old Cumnock (Glaisnock).

RENFREW (25).

Shaw's W. W. (Shielhill)—*G. tampered with.* |

DUMBARTON (6).

| Helensburgh (Rosemount).
 | „ (Water Works).

STIRLING (5).

Kippen—*Observer dead.* |

BUTE (5).

| Rothesay (Crichton Road).

ARGYLL, MAINLAND (16).

Lochgilphead (Poltalloch) 2nd g.—*Record imp.* |
 Strontian (Landale) 2nd g.—*Record ceased.* |

ARGYLL, INSULAR. (20).

Coll (The Manse)—*No reply.* | Jura (Ardfin).

CLACKMANNAN (4).

KINROSS (2).

FIFE (11).

Inohkeith.	
Cupar (Fife and Kinross Asylum).	

PERTH (28).

Auchterarder (Colquhalzie)— <i>Record ceased.</i>	Menteith (Cardross).
	Sheriff Muir (Lynns Farm).
	Callander (The Gart).
	Comrie (Dalginross).

FORFAR (22).

Arbroath— <i>Record ceased.</i>	Buddonness Lighthouse.
Kirriemuir (Lednethaie)— <i>No reply.</i>	Dundee Harbour.
	Monifieth (Fountain Brae).
	„ (Sea View).
	Arbroath (Waterworks Tower).
	„ („ „).

KINCARDINE (4).

ABERDEEN (17)

Cromar (Tillypronie)— <i>Record lost.</i>	Forest of Glen Tana.
Aberdeen (Braemar Place)— <i>Record ceased.</i>	Haddo House.
Inverury Manse— <i>Record unreliable.</i>	
Kinnairdhead— <i>Record imperfect.</i>	

BANFF (4).

ELGIN OR MORAY (5).

NAIRN (2).

Nairn (Acharéidh)— <i>Record ceased.</i>	
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WEST ROSS (12).

Lochbroom (Loch Drome)— <i>Record unreliable.</i>	Isle of Lewis (Stornoway).
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EAST ROSS (5).

Dingwall H.R.S.— <i>Record imperfect</i>	Fearn (Arboll).
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WEST INVERNESS (14).

	N. Uist (Monach).
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EAST INVERNESS (6).

Fort Augustus (St. Benedicts)— <i>Record imp.</i>	
Inverness High School— <i>Record imperfect.</i>	

SUTHERLAND (10).

Forsinard H.R.S.— <i>Record ceased.</i>	Lairg H.R.S.
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CAITHNESS (7).

ORKNEY (8).

SHETLAND (3).

IRELAND.

CORK (8).

| Cork (Park View).

KERRY (9).

| Killarney (Asylum).

WATERFORD (7).

Waterford (Gas Works)—*Record imperfect.* |

TIPPERARY (7).

LIMERICK (4).

Newcastle West—*No reply.* |

CLARE (6).

WEXFORD (6).

| Wexford (Felt House).

KILKENNY (5).

WICKLOW (2).

| Greystones (Knockeevin).

CARLOW (2).

QUEEN'S COUNTY 1).

KING'S COUNTY (2).

KILDARE (1).

DUBLIN (9).

Glenesmoel (Friarstown H.)—*Return not recd.* | Killiney (Eirine).
 Dalkey (Bellevue Park)—*Observer dead.* |

MEATH (4)

WESTMEATH (2).

LOUTH (6).

LONGFORD (1).

GALWAY (8).

Shannon Grove [Banagher]—*Record imp.* |

MAYO (5).

ROSCOMMON (0).

SLIGO (4).

LEITRIM (1).

CAVAN (1).

FERMANAGH (2).

MONAGHAN (0).

Rockcorry—*No reply.*

|

ARMAGH (3).

DOWN (11).

Castlewellan (Lough Island)—*Record imp.*

|

ANTRIM (18).

Aghalee [Lurgan]—*No reply.*

| Ballyclare.

| Ballynure (Ballyboley).

LONDONDERRY (8).

Coleraine—*No reply.*

|

TYRONE (7).

| Dungannon (Rockdale) 2nd g.

DONEGAL (9).

| Letterkenny (Carrablagh).

| Moville (The Rectory).

OBITUARY.

THIS year we have the shortest list of losses since 1883—not three-quarters of the average—and there is not one of the original contributors to English Rainfall, 1860. But death has removed some of our best supporters, such as Mr. La Trobe Bateman, F.R.S., who has for many years supplied us with returns from many stations on the waterworks of Manchester, Oldham, and other cities and towns of which he had constructed the works, Mr. Clegram, Mr. Coke, and Mr. Muir, were all engineers who helped us by furnishing copies of the records made under their direction. To Dr. Hoskins we were indebted for the longest series of observations ever made in the Channel Islands.

OBSERVERS DECEASED TO JULY, 1889.	PERIOD OF OBSERVATION.	
	DATE.	Perfect Yearly Records.
Bartlett, J. E., Esq., Peverel Court, Aylesbury.....	C 1874 imp- 76	2
Bateman, J. F., Esq., C.E., F.R.S. [See above] ...	1864-88	25
Berry, Mr. { Corse House, Aberdeen	1869-76	8
	C 1884-88	5
Blair, Capt. of Blair, Dalry, Ayr, N.B.	C 1863 imp -67 T.....	4
Capron, J. R., Esq., F.R.A.S., Guildown, Guildford	C 1880 imp-88	8
Clegram, W.B., Esq., C.E. { Gloucester, Twigworth	C 1858-62 imp T.	4
	{ Frampton - on-Severn,	
Coke, R.G., Esq., CE { Saul Lodge	C 1862 imp -88.....	26
	{ Tapton Grove, Chesterfield...	
	{ Brimington Hall, Chesterfield	
	{ Lindway Res., Chesterfield...	
Coode, J., Esq., Polcarne, St. Austell	1870-78 T	9
Crallan, Rev. T. E., Hayward's Heath, Sussex	C 1880-88	9
Dickson, Mr., Castlemilk, Lockerbie, Dumfries.....	1883-88	6
Hartley, Rev. A. O., Steeple Ashton, Trowbridge...	1866-87 T	22
Hopkins, T., Esq., Limber Grange, Ulceby	C 1868-84 T	17
Hoskins, Dr. S. E., F.R.S, York Place, Guernsey..	1887-88	2
Howard, J. Esq., Clapham Park, Bedford	C 1875 imp-88	13
Hudson, Dr., Glenville, Co. Cork	C 1882 imp-88 ..	6
Jones, H. M. Anketel, Esq { Drummany, Belturbet.	C 1843-81 T	39
	{ Belle Vue Park, Dalkey	
Kirk, J., Esq., The Watton, Brecknock	1875-88	14
Law, Frank, Esq., Agnes Road, Northampton	C 1871-86 T	16
	C 1873 imp-83 T	10
	1877-87 T	11
	C 1866 imp-87 T	21
	1886-88	3

OBSERVERS DECEASED TO JULY, 1889.	PERIOD OF OBSERVATION.	
	DATE.	Perfect Yearly Records.
McLaren, Mr. J. B., Cardington, Bedford	C 1846-87 C	32
Male, Rev. A. S., More Rectory, Bishop's Castle ...	C 1869 imp-87 T	18
Muir, J., Esq., C.E., New River Company's Stations	1875-82	8
Muirhead, Rev. P. J., Kippen, Stirling	1884-87 T	4
Newnham, Rev. P. H. {	Bournemouth	2
	FromeVauchurch, Dorchester	4
	Stonehouse, Devon	1
	Maker, Cornwall	9
	The Chaplainery, Exeter	1
Osborne, Rev. A. Haynes, Bedford	1884-86 T	3
Procter, J. R., Esq. {	Low Lights, N. Shields	26
	Clementhorpe ,, ...	21
Prout, Mr., Endsleigh, Milton Abbot	1880-88	9
Savill, R., Esq., Bushey, Watford ..	1876-85 T	10
Seager, Rev. J.O., Stevenage	C 1864-83 T	20
Sherwin, Mrs., Farnborough Grange, Hants.	1887 T ..	1
Triplow, Mr. T., Slade Farm, Chatteris	C 1879 imp-87 T	8
Upton, H. Esq., Aldwick, Bognor	C 1860-68, 70-76	16
Ward, Capt. J., R.N., Greenham, Newbury	C 1865 imp-87 T	22
Ward, T., Esq., Arnold House, Blackpool	1878-87 T ..	10
Welch, E. B. Kemp, Esq., Westbourne, Bournemouth	{ 1869-73 imp TC 75	14
	{ imp-88 imp T	
Westrop, M. H., Esq., Carrigaline, Co. Cork.....	C 1885-88	4

RAINFALL AND METEOROLOGY
OF
1888.

SYMBOLS EMPLOYED.

<i>H.R.S.</i>	. . .	Highland Railway Station.
H.	. . .	Hail.
L.	. . .	Lightning.
R.	. . .	Rain.
S.	. . .	Snow.
T.	. . .	Thunder.
TS.	. . .	Thunderstorm.
TSS.	. . .	Thunderstorms.

ON THE METEOROLOGY OF 1888.

WITH NOTES OF SOME OF THE PRINCIPAL PHENOMENA.

[These Notes should be read in conjunction with those on Heavy Rains in 1888.]

JANUARY.

1st to 4th.—*Canterbury, Harbledown* (II). S.

2nd.—*Gorebridge, Middleton* (XIII). S two inches deep.—*Edgeworthstown, Currygrane* (XXI). S yielding .35 in.

2nd.—Heavy S falls occurred in the N. and W. of Scotland, causing some delay to traffic, &c., and also in the neighbourhood of Armagh.

3rd.—*Douglas, Victoria Road* (XI). Strong S. gale.—*Watten H.R.S.* (XIX). S.E. gale at night.—*Newcastle West* (XX). S.W. gale and 1.10 in. of R, followed by .64 in. on 4th, and great floods in the valley of the lower Deel.—*Lauderdale* (XXII). S.W. gale and heavy R.—*Cushendun* (XXIII). S.W. gale at night.

3rd and 4th.—*New Galloway, Glenlee* (XII). R 3.80 in. R commenced about mid-day on the 3rd, and continued, apparently, without intermission, till night on the 4th. The river Ken and Loch Ken rose very rapidly, and flooded some of the roads to a depth of several feet.—*Glenaladale* (XVIII). R 4.13 in.; very stormy on 3rd.—*Broadford, Hurdlestown* (XX). S.W. to S.E. gale.—*Miltown Malbay* (XX). High wind and heavy R.—*Galway, Queen's College* (XXII). Gale with heavy squalls.—*Clifden, Kylemore* (XXII). Very wet and stormy; R 2.54 in.

3rd to 5th.—*Fermoy Gas Works* (XX). R 2.68 in.; works flooded on 5th, fires put out, and the town in darkness for four nights.

4th.—*Shap, Copy Hill* (X). Strong gale all day.—*Llechryd, Fernhill* (XI). S.W. gale.

5th.—*Clifden, Kylemore* (XXII). Strong S.W. gale.

7th.—*Watten, H.R.S.* (XIX). W. gale at night.

7th to 13th.—*Diglis Lock* (VI). Fog.

8th.—*Nottingham, Beeston Fields* (VII). Very warm; mean temp. 49°·8.

8th and 9th.—*Taunton, Bishop's Lydeard* (V). Fog.

8th to 12th.—*Ryde, Thornbrough* (II). Fog.

8th to 14th.—*Llandovery* (XI). Fog.

9th.—*Derby, Elvaston* (VII). Dense fog.

9th and 10th.—*Shap, Copy Hill* (X). Fine and warm, like May; birds singing.

9th to 12th.—*Wallington* (II). Fog.—*Cheltenham* (VI). Dense fogs.

9th to 13th.—*Ashburton, Druid* (V). Dense fog.

9th to 14th.—*Teignmouth, Woodway* (V). Fog.—*Bincombe* (V). Very dense fogs.—*Wickwar* (VI). Fog.—*Burton, Derby Road* (VI). Thick fog.—*Llanfrechfa Grange* (XI). Thick fog set in at 7 a.m. on 9th and continued night and day till 14th.—*Edgworthstown, Currygrane* (XXI). Foggy.

10th.—*Warminster* (V). Fog, yielding ·02 in. in the rain gauge.—*Hurdlestown* (XX). S.W. gale.

10th and 11th.—*Sheppey, Leysdown* (II). Dense fog.—*Bishop's Cannings* (V). Fog.—*Uldale* (X). Fog.

10th to 12th.—*Finchley, Etchingham Park* (I). Wet fog.—*Reigate, Holmfels* (II). Dense fog.

10th to 13th.—*Glenlee* (XII). Foggy all day.

10th to 14th.—*Camberley, Heathcote* (II). Fog highly charged with moisture yielding ·02 in. each day on 11th and 12th.—*Llechryd, Fernhill* (XI). Fog all day.

11th.—*Berkhampstead* (III). Thick fog all day, garden wall became invisible at 46 yards.—*Shap, Copy Hill* (X). Fog such as is seen in Manchester or London; nearly dark all day.

11th and 12th.—*Newport* (IV). Fog.—*Meltham, Harewood Lodge* (IX). Very thick fog.

11th to 13th.—*Pinner Hill* (I). Foggy.—*Rendlesham Hall* (IV). Heavy fog.—*Hemingby* (VII). Wet fog.—*Nottingham, Beeston Fields* (VII). Thick fog.—*Macclesfield* (VIII). Dense fog all day.—*Knutsford* (VIII). Continuous dense fog.—*Scarborough* (IX). Wet fog.—*Barnard Castle, Whorlton* (X). Fog.

11th to 14th.—*Banbury, Bloxham* (III). Dense fog.—*Thixendale* (IX). Dense fog, with very high pressure.—*East Layton* (IX). Foggy.

12th.—*Berkhampstead* (III). Thick fog all day; garden wall became invisible at 43 yards.—*Taunton, Bishop's Lydeard* (V). Fog.

16th.—*Melrose, Abbey Gate* (XII). Eildon hills white with S.—*Ravensdale School* (XXI). Strong E. gale.

16th and 17th.—*Penrith, Kirkland* (X). Helm wind.

17th.—*Hurdlestown* (XX). S.W. gale.

21st to 24th.—*Miltown Malbay* (XX). Sea fog.

23rd.—*Clifden, Kylemore* (XXII). Strong W. gale.

23rd and 24th.—*Lawderdale* (XXII). S.W. to N.W. gale.

24th.—*Clifden, Kylemore* (XXII). Great gale.

24th and 25th.—*Glenaladale* (XVIII). Very stormy, with 2·94 in. of R.—*Galway, Queen's College* (XXII). Gale, with heavy squalls.

25th.—*Berkhampstead* (III). Westerly gale.—*Ross, The Graig* (VI). Whole gale at night.—*Douglas, Victoria Road* (XI). Violent W.S.W. gale, causing some damage to buildings in course of erection,—*Hurdlestown* (XX). Severe W. gale.—*Miltown Malbay* (XX). N.W. gale.—*Edgworthstown, Currygrane* (XXI). Strong gale.—*Buncrana, Rockfort* (XXIII). Violent gale from W.

26th.—*Sheppey, Leysdown* (II). Westerly gale.—*Derby, Elvaston* (VII). N.W. gale.

26th and 27th.—*Forsinard H.R.S.* (XIX). S, drifting on the latter day.

27th.—*Bishop's Cannings* (V). Heavy squalls from N.N.W., with S.—*Coston Rectory* (VII). T and L about 6.30 p.m.—*Stamford, Ketton Hall* (VII). R, S, and H.—*Watten, H.R.S.* (XIX). Stormy, with showers of S, and drift.

30th.—*Gorebridge, Middleton* (XIII). S 4 in. deep.

30th.—Heavy falls of S occurred in Hants, Berks, the midland counties, Norfolk, and N. Wales.

30th and 31st.—*Bincombe* (V). S storms and gale.

31st.—*Rendlesham Hall* (IV). Very strong wind, with R, S and sleet.—*Southwell* (VII). Heavy S 0.30 to 2.30 p.m., 2 in. deep,—*Melrose, Abbey Gate* (XII). S 1½ in. deep.—*Gorebridge, Middleton* (XIII). S 6 in. deep.—*Forsinard, H.R.S.* (XIX). S drifting.—*Lawderdale* (XXII). N.W. gale.—*Cushendun* (XXIII). N.E. gale.—*Knockan* (XXIII). Heavy gale.

FEBRUARY.

10th.—*Cargen* (XII). S 3 in. deep.—*Colmonell* (XIV). S 4½ in. deep.

11th.—*New Galloway, Glenlee* (XII). S 5½ in. deep.—*Limerick, Kilcornan* (XX). About 7 in. of S.

13th.—*Finchley, Etchingam Park* (I). S $3\frac{1}{2}$ in. deep.—*Littlehampton* (II). T, L, H and S.—*Lewes, Iford* (II). Heavy fall of S, yielding 1·15 in.—*Forest Lodge* (II). Heavy S, yielding ·67 in.—*Clifton, South Parade* (VI). Twelve inches of S, yielding 1·35 in.—*Cirencester, Roy. Agricultural Coll.* (VI.) S 11 in. deep.—*Chelford, Astle Hall* (VIII). Four inches of S.—*Knutsford* (VIII). About 3 in. of S.—*Llanfrechfa Grange* (XI). Eight inches of S, and drifts 4 and 5 ft. deep.

13th and 14th.—*Lambourne* (II). Much S; average depth on the latter day, 18 in.—*Shrivenham, Ashbury Vicarage* (II). S falling regularly for nearly 24 hours, the greatest fall remembered. The gauge was quite buried, but the depth was estimated at 2 ft. = 2·00 in. of R; this fall was succeeded by several others, and the S did not finally disappear from the hills till April 13th, the latest date known. Owing to the high wind it was much drifted, blocking some of the roads on the downs longer than in January, 1881.—*Little Wittenham* (II). Total S $19\frac{1}{4}$ in., yielding 2·27 in.—*Woburn Sands* (III). Nine inches of S.—*Oxford, Magdalen Coll.* (III). Precipitation, 2·62 in. nearly all S.—*Oxford, Radcliffe Observatory* (III). An unusually heavy fall of S commenced at 4 p.m. on 13th, and continued till 11.30 p.m. on 14th. The average depth in the observatory grounds was 19·5 in. when measured through the whole depth after the S ceased falling, and 23·8 in. from several measurements in one place, the S being cleared off after each time.—*Oxford, St. Giles* (III). Continuous S from midnight on 13th to 6 p.m. on 14th, when the depth was 18 in. followed by about 2 in. more at night, with high wind; yield 2·00 in.—*Bishop's Cannings* (V). Heavy S, which being very dry, blew about and drifted a great deal, filling up the roads three times.—*Great Barrington* (VI). Heavy fall of S.—*Cheltenham, Montpellier Lodge* (VI). S, yielding 1·14 in.—*Orleton* (VI). Light S fell to the depth of 6 or 7 in., with a rough wind which caused great drifts, filling up many of the narrow roads on the high lands.—*Chepstow, Shirenewton Hall* (XI). A great S fall; $11\frac{1}{4}$ in. deep on the level, with drifts 15 ft. and 16 ft.; all roads were blocked for some days. This snow required $17\frac{1}{2}$ in. to yield 1·00 in. of water; it blew about for four days, filling up the roads as fast as they were cut through.

13th and 14th.—Heavy falls of S occurred in Berks, the south-western counties, Staffordshire, N. Wales, and the S.W. of Scotland; railway traffic being impeded in many places, especially in Somersetshire.

14th.—*Berkhampstead* (III). S on ground 5 in. deep.—*Addington* (III). S commenced early, and by 9 a.m. yielded .23 in ; by 11 a.m. it was 6 inches deep ; it ceased to fall for a couple of hours, but by 5 p.m. was 8.5 in. deep, and by 10 p.m. 12 in. ; at 9 a.m. on 15th the yield was 1.49 in. The greatest depth on the ground was 13 inches. Careful measurements at Oxford gave a depth of 20.4 in., and at Little Wittenham of 19 in.—*Oxford, Elsfeld* (III). S yielding .89 in.—*Stanton St. John's, Woodperry* (III). S yielding 1.18 in.—*Castle Ashby* (III). R and S 1.05 in., depth of S 10 in.—*Sedgebrook, Pitsford* (III). Snowing very fast with cold N. wind all day and night, depth of S at 6 p.m. 10 in. ; on 15th the roads were quite impassable in places, the drifts being from five to eight feet deep.—*Easton [Stamford]* (III). Depth of S 10 in.—*Stowell Rectory* (V). S 6 in. deep.—*Cheltenham* (VI). S 7½ in. deep.—*Hemingby* (VII). Gale with S nearly all day.—*Edinburgh, Blacket Place* (XIII). S 4 in. deep.—*Watten, H.R.S.* (XIX). S 3 in. deep.

14th and 15th.—*Ross, The Graig* (VI). Five inches of S on 14th and one inch on 15th.—*Ketton Hall* (VII). Eight inches of S yielding .96 in.

15th.—*Berkhampstead* (III). Heavy S 3 to 4 p.m.—*Diss* (IV). Heavy S storms from N.—*Nottingham, Beeston Fields* (VII). Four inches of S.—*Derby, Elvaston* (VII). N.E. wind and driving S storms.

16th.—*Canterbury, Harbledown* (II). S 3½ in. deep.—*Berkhampstead* (III). S 4 in. deep on ground.

18th.—*Alton, Ashdell* (II). Three inches of S, the greatest depth during the month.

18th and 19th.—*Burton, Derby Road* (VI). Two-and-a-quarter inches of S fell.—*Southwell* (VII). S 2 in. deep, yielding only .08 in. of R.

19th.—*Berkhampstead* (III). S 4 in. deep on ground.—*Derby, Elvaston* (VII). N.E. wind and driving S.—*Hadfield, Millbrook* (VIII). S about 8 in. deep, yielding .59 in.—*Shap, Copy Hill* (X). Strong E. gale.—*Trawsfynydd* (XI). Gale from N.E. with heavy fall of S, the railway between Trawsfynydd and Bala being blocked by snow drifts on the 20th, 21st and 22nd.—*Gorebridge, Middleton* (XIII). S 6 in. deep.—*Edinburgh, Blacket Place* (XIII). Fierce N.E. gale with S and H squalls.

19th.—Heavy falls of S occurred in many parts, blowing into deep drifts, and causing much hindrance to railway traffic in the north of England, Wales, and Scotland.

19th to 21st.—*Penrith, Kirkland Vic.* (X). Helm wind.

20th.—*Canterbury, Harbledown* (II). S 5 in. deep.—*Berkhampstead* (III). S on ground $4\frac{1}{2}$ in. deep.—*Diss* (IV). Heavy N.E. gale.—*Ketton Hall* (VII). Eight-and-a-quarter inches of S on ground.—*Nottingham, Beeston Fields* (VII). Four inches of S.

20th and 21st.—*Bishop's Cannings* (V). Strong E. gale drifting the S on the ground.

22nd.—*Horsham, Rusper* (II). Max. temp. 27° .—*Meltham, Harewood Lodge* (IX). Moisture falling and freezing, covering everything with a thin coating of ice.

24th.—*Horsham, Rusper* (II). Max. temp. 27° .

25th.—*East Layton* (IX). Incessant fine S with strong N. wind and terrible drifts.

26th.—*Bishop's Cannings* (V). Strong N.E. gale blocking the roads with S.

26th.—The Severn, at Shrewsbury, was completely frozen over for a long distance, and passages had to be cut for the ferry boats.

29th.—*Berkhampstead* (III). S on ground 3 in. deep.

MARCH.

1st.—*Berkhampstead* (III). S on ground 4 in. deep.

1st to 5th.—*Beckenham, Foxgrove* (II). Skating.

8th.—*Berkhampstead* (III). Garden free from S for the first time for over three weeks.

11th.*—*Emsworth, Redlands* (II). Severe S.W. gale.—*Berkhampstead* (III). Fresh westerly gale. Bar. 28.704 in.—*Babbacombe* (V). One of the severest gales ever recorded here, the velocity of the wind (W.S.W.) exceeding 50 miles in each of the four consecutive hours, from 7 to 11 a.m., and attaining 58 miles from 9 to 10 a.m. Minimum bar. 28.800 in. (corr.) at 9.50 a.m.—*Ashburton, Druid* (V). Fearful gale; many large trees blown down.—*Scarborough* (IX). Heavy F. gale, with R and S.—*Shap* (X). S and H all day, the drifts on 12th being 6, 8 and 10 ft. deep.—*Douglas, Victoria Road* (XI). S.E. gale, with R and S 1.11 in.

11th to 17th.—*Pawston [Coldstream]* (X). S began on 11th, but nothing of a block occurred till 15th, when the train from Alnwick to Cornhill, due at Mindrum at 8.29 p.m., did not arrive till past 11 p.m. No other trains on this line got through till the afternoon

* Respecting these snow storms, see *Met. Mag.* April, p. 33.

of 17th. The quantity of S was not so great as in 1886, but the block was just as great owing to the greater current of wind. There have been only three blocks of importance since 1872—January, 1875, March, 1886, and March, 1888. There were heavy falls of S in December, 1882, and January, 1881, but on neither of these occasions did the S drift, and the roads, although heavy, were not rendered impassable.

13th.—*Berkhampstead* (III). Heavy S at night.—*Colmonell* (XIV). S 2 in. deep.—*New Barnsley* (XXIII). More than 6 in. of S.

14th.—*Finchley, Etchingham Park* (I). Vivid L and heavy T between 4.50 and 5.30 p.m., with a steady downpour of H for about half an hour.—*Pinner Hill* (I). T and L.—*Barton Hall* (X). S 7 in. deep, and drifts 7 ft. on the roads.—*Stronvar* (XVI). S 4 in. deep.—*Strathmiglo, Loden Urquhart* (XVI). The S storm was the worst since March, 1881.

15th.—*Alnwick, Belle Vue* (X). Stormy from S.S.E., with S yielding .25 in. ; no railway communication throughout the county, and no letters or papers.—*Dumfries, Crichton Institution* (XII). S 5 in. deep.—*Melrose, Abbey Gate* (XII). Six and a half inches of S.—*Edinburgh, Blacket Place* (XIII). Severe S storm, with E.S.E. gale.

16th.—*Ross* (VI). Three inches of S.

17th.—*Witton-le-Wear, Witton Tower* (X). S yielding 1.87 in.

18th and 19th.—*Canterbury, Harbledown* (II). S all day ; depth 5 in. to 7 in.

19th.—*Dover, Pencester Road* (II). Blizzard all day ; the S in very fine particles and driven like smoke. About 5 p.m. a blinding storm of icy S in needle-like crystals ; heavy fall at night. Very deep drifts in streets and railway cuttings blocked.—*Littlehampton* (II). S 3 in. deep.—*Thixendale* (IX). A bitter cold day, steady strong E. wind ; dry S drifting like a sand storm.

20th.—*Lansdowne Crescent* (I).—S $2\frac{1}{2}$ in. deep at 9 a.m., yielding 20 in.

23rd.—*Drumnadrochit* (XVIII). Strong N.E. gale, with sleet and S.

24th.—*Southwell* (VII). S in night $2\frac{1}{2}$ in. deep ; yielding .23 in.—*Chepstow, Shirenewton Hall* (XI). S storm, with extraordinary flakes ; some were $3\frac{3}{4}$ in. in diameter, yet only $\frac{1}{4}$ in. thick falling like plates. The storm only lasted two minutes, but in this short period the ground was covered 2 in. deep. It only required 6 in. of this snow to yield 1.00 in. of water.—*Edinburgh, Blacket Place* (XIII). Heavy fall of S during night, yielding .58 in.

25th.—*Pinner Hill* (I). S 2 in. deep.—*Torrington, Langtree* (V). S $5\frac{1}{2}$ in. deep.—*Ross* (VI). Four inches of S.—*Burton, Derby Road* (VI). Heavy fall of S at night.—*Carno, Tybrith* (XI). S 6 in. deep.—*Melrose, Abbey Gate* (XII). Seven inches of S.—*Glasgow, Queen's Park* (XIV). S 6 in. deep.

25th to 28th.—*Derby, Elvaston* (VII). Heavy S storms.

26th.—*Addington* (III). S 2 in. deep.

27th.—*Southwell* (VII.) S in night $2\frac{1}{2}$ in. deep ; yielding 19 in. — *Carno, Tybrith* (XI). S 8 in. deep.

28th.—*Dover, Pencester Road* (II). TS at 2 p.m., with H, R, and violent squall.—*Rendlesham* (IV). TS.—*Ross* (VI). Three inches of S.—*Coston Rectory* (VII). T, L, and S.—*Douglas, Victoria Road* (XI). Violent S.E. gale, with R and S.—*Gorebridge, Middleton* (XIII). Six inches of S.

29th.—*Wem, Clive Vicarage* (VI). Heavy TS, with R and sleet.

APRIL.

1st.—*Hurdlestown* (XX). S on the hills.

5th.—*Ashburton Druid* (V). Heavy S at 7 a.m., hills white.

7th. *Hastings, High Beech, Hollington* (II). S.

8th.—*Keston Tower* (II). Heavy S and H showers all day.—*Horsham Rusper* (II). Heavy S storm.—*Berkhampstead* (III). R, H, soft H and S.

9th.—*Thixendale* (IX). S.

17th.—*Burton, Derby Road* (VI). TS.—*Hoar Cross* (VI). Severe storm of R and H with vivid L and heavy T ; an oak tree struck, and a large hole cut in the road.—*Derby, Elvaston* (VII). H and T.—*Macclesfield* (VIII). TSS and H.—*Thixendale* (IX). Tree struck by L.—*Baldersby* (IX). Severe TS.—*Scarborough* (IX). Heavy TS 2 to 3 p.m.

17th.—During a heavy TS in Yorkshire a man and three horses ploughing near Thirsk were killed by L, and a youth near Scarborough was also struck and fatally injured.

17th and 18th.—*Ketton Hall* (VII). T, H and R.

17th to 20th.—*Coston* (VII). T daily.

18th.—*Drumnadrochit* (XVIII). Sharp TS.

18th.—Heavy TS in Lincolnshire, with stones as large as marbles.

18th and 19th.—*Finchley, Etchingam Park* (I). T and H.

18th to 20th.—*Hemingby* (VII). T daily.

19th.—*Cheltenham* (VI). TS and H.—*Derby, Elvaston* (VII). H and T.

20th.—*Southwell* (VII). Heavy storm of R at 2.30 p.m. with T and L once and heavy H at 3 p.m.—*Borrowdale Vicarage* (X). S on the hills.

20th to 24th.—*Melmerby* (X). Helm wind.

21st.—*Berkhampstead* (III). Heavy fall of large opaque H soon after 3 p.m. ; H lay to a depth of $\frac{1}{2}$ in. after the storm.—*Douglas, Victoria Road* (XI). Hills covered with S.

23rd.—*Derby, Elvaston* (VII). Heavy N.E. gale.

30th.—*Berkhampstead* (III). Ten-and-a-half hours of sunshine.—*Miltown Malbay* (XX). Heavy S.W. to N. gale.

MAY.

1st and 2nd.—*Buncrana* (XXIII). Strong gale from N.W. veering to S.W.

2nd.—*Stronvar* (XVI). T, L, and heavy R, 1·22 in.

3rd.—*Oxford, Magdalen Coll.* (III). TS.—*Further Barton* (VI). TS with H.—*Coston* (VII). T, L and H about 4 p.m.—*Nottingham, Beeston Fields* (VII). Strong N.W. gale with H.—*Llandovery* (XI). Heavy H storms.

3rd.—Severe gale ; the iron church in course of erection at Stronan, near Sheffield, was blown down ; near Driffild, trees were broken and a hawker's van covered with baskets, brushes, &c. was overturned ; near Masham. a tree was blown down, and carrying with it a wall, severely injured a passer by. Fishermen on the S. coast of Ireland describe the gale as the most severe for several years, and many casualties were reported.

3rd and 4th.—*Glenaladale* (XVIII). S on hills.

4th.—*Edinburgh, Blacket Place* (XIII). R from a cloudless sky, lasted 8 minutes.

11th and 12th.—*Beckenham, Foxgrove* (II). Frost.

17th.—*Bincombe* (V). Very heavy R all day and night.—*Currygrane* (XXI). TS.—*Lurgan, Belle Vue* (XXIII). TS with tremendous H shower ; ·25 in. fell in 10 minutes.

18th.—*Babbacombe* (V). L.—*Further Barton* (VI). TS.—*Barton Hall* (X). TS.—*New Galloway, Glenlee* (XII). T and L, with heavy R.—*Dumfries, Crichton Institution* (XII). T and L.

18th and 19th.—*Knutsford* (VIII). T.—*North Esk Reservoir* (XIII). T and L.

19th.—*Tean Vicarage* (VI). The 9 a.m. reading of the dry bulb

ther. (68°) was the highest in May during 15 years.—*Walton-on-the-Hill* (VIII). Severe TS, with H, R and strong wind.—*Shap* (X). TS in afternoon.—*Cargen* (XII). Severe TS. Several horses and some cattle killed by L in the district.—*Melrose, Abbey Gate* (XII). T and L.—*Glasgow, Queen's Park* (XIV). TS, with heavy B and H.—*Stronvar* (XVI). Very severe TS, with heavy R (1.64 in.). *Forres H.R.S.* (XVII). TS.—*Achonachie Lodge* (XVIII). Great TS; an oak tree struck and destroyed.—*Drumnadrochit* (XVIII). TS.—*Scourie* (XIX). Terrific TS with very vivid L from 5 to 7 p.m.—*Watten H.R.S.* (XIX). TS of unusual severity.

19th.—At Glasgow, about 4.45 p.m., three boys were walking across the Green, when two of them were struck by lightning and killed; of one the hair was singed and the head and chest scorched; the other showed no injury but a black mark round the throat. The ground was much torn up. Two men were struck in Paisley Road; one was killed, the other stunned. At Closeburn, about 12 miles from Dumfries, a man and a pair of horses which he was driving were killed by L. The Fifeshire Lunatic Asylum near Coupar was struck and fired.

21st.—*Upminster Hall* (IV). R .54 in. in 15 minutes.

23rd.—*Berkhampstead* (III). Nearly 14 hours of clear sunshine; relative humidity, 35.

28th.—*Aboyne, Glen Tana* (XVII). Temp. fell to 14° .

28th and 29th.—S fell steadily on the higher mountain ranges of Scotland, and on 29th ice was seen on the pools in Kincardineshire, Forfar, Perth, Banff, and other northern counties.

30th.—*Burton, Derby Road* (VI). Gale from S.W.

JUNE.

2nd and 3rd.—*Aboyne, Glen Tana* (XVII). Four inches of S in 24 hours.

3rd.—*Achonachie Lodge* (XVIII). S and sleet and all the hills white down to the cultivated ground on the 4th.—*Drumnadrochit* (XVIII). Hills snow clad down to 600 feet above sea level.—*Forsinard* (XIX). S on the hills.

4th.—*Aboyne, Glen Tana* (XVII). A white world; every young grouse and pheasant must have been killed.

5th.—*Nenagh, Castle Lough* (XX). R, 2.30 in.; the largest fall previously was 1.73 in. in September, 1885.

9th.—*Derby, Elvaston* (VII). TS and heavy R.—*Macclesfield* (VIII). Very heavy TS 1 to 2 p.m. ; .78 in. of R fell in 30 minutes.—*Langholm* (XII). Between 1 and 2 p.m. 1.21 in. of R fell in 40 minutes.

9th.—Waterspouts in E. Yorkshire. (See *Met. Mag.*, July, p. 84).

12th.—*White Lackington* (V). H, which lay on the ground till next morning.

13th.—*Henley-on-Thames, Assenton* (III). Thunderstorm 2.15 p.m. to 2.25 p.m. R .25 in. H principally.—*Meltham, Harewood Lodge* (IX). T without L from 0.45 to 1.30 p.m. ; also sharp TS at 5 p.m. ; one or two very heavy claps.—*Thixendale* (IX). TS ; .28 in. of R in ten minutes.—*Scarborough* (IX). Violent wind and TS.

14th.—*Emsworth, Redlands* (II). T, L, H and R.—*Hemingby* (VII). TS.—*The Hangingshaw* (XIII). TS.

14th.—Snowstorm in Cornwall. (See *Met. Mag.*, July, p. 91.)

21st.—*Broxbourne* (III). TS ; many trees struck by L.—*Oxford, Magdalen Col.* (III). TS from 10.30 a.m. to 5.30 p.m.—*Oxford, St. Giles* (III). Very heavy T and R, 1.08 in.—*Oxford, Elsfield* (III). In 25 minutes .95 in. of R fell.—*Weybread* (IV). T.—*Diss* (IV). Sharp TS.—*Cirencester, Further Barton* (VI). Heavy TS.—*Great Barrington* (VI). Heavy TS.—*Chepstow, Shirenewton Hall* (XI). TS ; .70 in. of R ; this storm was much more violent to N. and E.—*Abergavenny, Dyne House* (XI). Between 5 and 6 p.m. .41 in. of R fell.

22nd.—*Hemingby* (VII). TS.—*Southwell* (VII). Violent TS with heavy R 5.30 to 6.30 a.m., TS again 3 to 4 p.m.—*Derby, Elvaston* (VII). Heavy TS.

22nd.—At Newark a boatman was killed by L, and at Spalding the R caused a good deal of flooding.

25th.—*Liphook, White Hill Chase* (II). In 31 minutes .84 in. of R fell.—*Emsworth, Redlands* (II). Severe TSS.—*Aldershot* (II). Great TS with 1.28 in. of R.—*Broxbourne* (III). TS for four hours, L very vivid.—*Oxford, Magdalen College* (III). Heavy TS.—*Oxford, St. Giles* (III). Very heavy T with prodigious H.—*Bloxham* (III). Heavy TS with .61 in. of R in less than half-an-hour.—*Ely, Stretham* (III). Heavy TS from 7.45 to 8.5 a.m. ; 1.05 in. of R in 20 minutes.—*Dennel Hill [Chepstow]* (VI). Severe TS with 1.35 in. of R, nearly all in half-an-hour.—*Preston Gubbalds* (VI). TS.—*Dowlais, Cwm Bargoed* (XI). Between 5.10 p.m. and 5.25 p.m. .66 in. of R fell.—*Llandovery* (XI). Heavy TS.—*Nanthir Reservoir [Aberdare]* (XI). In 15 minutes .52 in. of R fell.—*Galway, Queen's College* (XXII). T and L from 2 to 4 p.m.

25th.—A severe TS occurred between Redhill and Dorking ; two children were struck by L, but not fatally injured. L also struck and killed a woman near Monmouth. Slight damage from both L and flooding occurred in several parts of the country.

26th.—*Lansdowne Crescent* (I). TS and heavy R ($\cdot 70$ in.) after 8 p.m.—*Hendon* (I). TS from 7 to 8 p.m. with $1\cdot 25$ in. of R in three-quarters of an hour.—*Finchley, Etchingham Park* (I). Heavy TSS with $1\cdot 14$ in. of R.—*Pinner Hill* (I). Heavy TS.—*Reigate, The Castle Gardens* (II). The R ($1\cdot 56$ in.) was very local, extending less than half a mile eastward.—*Sevenoaks, Purleigh* (II). R $2\cdot 26$ in., of which about $2\cdot 00$ in. fell between 8 and 9 p.m.—*Maresfield, Forest Lodge* (II). Total R $1\cdot 19$, of which the greater part fell between 3 and $4\cdot 15$ p.m.—*Alresford, Arle-Bury* (II). In one hour and a half $\cdot 65$ in. of R fell.—*Berkhampstead* (III). In 15 minutes $\cdot 15$ in. of R fell.—*Hitchin* (III). During the night a series of waterspouts seem to have occurred along the valley of the Mimram from Welwyn to Hexton. The greatest fall was at Hexton, on the watershed of the Lea and Ouse, where the chalk cliff was completely denuded, and two feet of water stood in the village. At Lord Ducie's at Kimpton the R washed 20 yards of the park wall across the road, and carried whole fields of young turnips away with it, filling up one lane with soil so that it had to be dug out.—*Chelmsford, Roxwell* (IV). From $4\cdot 45$ p.m. to $5\cdot 43$ p.m. $1\cdot 09$ of R fell, accompanied by violent T and L ; the R for the 24 hours was $1\cdot 39$ in.—*Sudbury* (IV). Heavy TS, $\cdot 18$ in. of R in 15 minutes.—*Weybread* (IV). T, L, H and R.—*Diss* (IV). Sharp TS.—*Buncrana* (XXIII). TS with $\cdot 54$ in. of R in about 15 minutes.

28th.—*Ely, Stretham* (III). Heavy TS ; $1\cdot 05$ in. of R in 20 minutes from 7.55 a.m.—*Stowell Rectory* (V). Heavy R and H, $\cdot 44$ in. fell in 30 minutes.

28th and 29th.—*Drumnadrochit* (XVIII). Dense fogs.

29th.—*Canterbury* (II). R from 1 p.m. to 1.30 p.m., during the 30 minutes $\cdot 44$ in. fell.

JULY.

1st.—*Ystalyfera, Tan-yr-allt* (XI). In 90 minutes $1\cdot 55$ in. of R fell.

2nd.—*Northampton* (III). S.W. gale.—*Bolton, The Park* (VIII). Steady downpour for 20 hours, $2\cdot 20$ in.—*Rochdale, Stone Hill* (VIII). R $2\cdot 35$ in., the largest fall recorded.—*Over Darwen* (VIII). R, $2\cdot 43$ in., an unprecedented fall. — *Slaidburn, Brennand* (IX). Enormous R,

4.50 in.—*Slaidburn, Whitendale* (IX). A very unusual fall of R, 4.57 in.—*Haverfordwest* (XI). In 11 hours from 4 a.m., 1.94 in. of R fell.

2nd and 3rd.—*Meltham, Harewood Lodge* (IX). R nearly all day on 2nd, followed by an exceedingly stormy night; wind most violent between 0 and 1 a.m., with torrents of R. Total fall 1.61 in., the largest but one for seven years.

4th.—*Burton, Derby Road* (VI). Severe TS from 2.30 to 6.30 p.m.—*Derby, Elvaston* (VII). Much T and L.

5th.—*Lansdowne Crescent* (I). In 15 minutes .45 in. of R fell between 2.58 p.m. and 3.30 p.m.—*Sudbury* (IV). TS and R, .30 in. in half-an-hour.—*Weybread* (IV). Two violent TSS 11.30 a.m. to 1 p.m., and 1.30 p.m. to 3.25 p.m.—*Hillington* (IV). T, L, and heavy H 2.04 in. in two hours and ten minutes.—*Burton, Derby Road* (VI). Violent TS during greater part of afternoon, R .79 in.—*Meltham, Harewood Lodge* (IX). TS from 2.45 to 5 p.m., very vivid L.—*Newport, Crindau House* (XI). In 20 minutes .35 in. of R fell.—*Ystalyfera, Tan-yr-allt* (XI). In 40 minutes 1.63 in. of R fell.

5th.—TS at Sheffield about noon; a building struck and two men injured. TS near Stockport, the Sheffield and Midland line flooded to a depth of 3 or 4 ft. Heavy TS also at Wigan, the Royal Court Theatre was struck by L and several cellars were flooded.

6th.—*Babbacombe* (V). The heaviest storm of R, H, T and L ever known passed over, the clouds coming from W.N.W. and going off to E. It began at 1.4 p.m., was very severe from 1.30 to 2.15 p.m., and ceased at 4.10 p.m., though showers fell till 8.15 p.m. The total R was 1.98 in., 1.47 in. of which fell in 30 minutes, from 1.30 to 2 p.m. Great damage was done to vegetation and glass, and chicken were killed by the tremendous H which fell from 1.33 to 1.58 p.m., many of the stones measuring $\frac{3}{4}$ in. by $\frac{1}{2}$ in. in diameter. The ground was covered an inch deep with them for about an hour, and they were still several inches deep in the drifts in the afternoon.—*Teignmouth, Woodway* (V). Violent TS with heavy R. Shaldon Board School struck.—*Preston Gubbalds* (VI). TS—*Newcastle West* (XX). Violent TS.

6th.—About 1.30 p.m., heavy R fell at Windsor, and, running from the Castle precincts, forced up the roadway near the Vicarage and flooded a portion of the Great Western Railway.

7th.—*Oakham*. S fell for about 20 minutes in the early morning.

8th.—*Chepstow, Shirenewton Hall* (XI). TS, .62 in. of R.

9th.—*Drumnadrochit* (XVIII). S on hills of 3,000 ft. and upwards.

10th.—*Mansfield Market Place* (VII). Slight S storm.—*Ystalyfera Tan-yr-allt* (XI). A great H storm.—*Abergwessin* (XI). S in the night.—*Cushendun* (XXIII). Two inches of S on Nostan Mount.

10th.—S fell at night on the higher mountains of Cumberland and Westmoreland, and Skiddaw was white next morning. The Grampians also were white with S.

11th.—*Lansdowne Crescent* (I). The coldest July day during 10 years.—*Canterbury, Harbledown* (II). Snowing early for 20 minutes, making the ground white.—*Keston Tower* (II). A slight fall of S at Cudham, about four miles from Keston.—*Horsham, Rusper* (II). Slight fall of S.—*Emsworth, Redlands* (II). S at Portsmouth.—*Northampton* (III). S in the neighbourhood.—*Cheltenham* (VI.) The coldest July day for 11 years, mean temp. 47°·7.—*Nottingham, Cromwell Street* (VII). S at 5 a.m.—*Derby, Elvaston* (VII). Very stormy, H, sleet and S at 5 a.m.—*Wetwang* (IX). S.—*Douglas, Victoria Road* (XI). Bitter N.W. gale with S in the neighbourhood.—*Newcastle West* (XX). Slight frost.

11th and 12th.—*Welshpool, Pool Quay Vicarage* (XI). Berwen white with S.

15th.—*Kensington, Addison Gardens* (I). TS at midnight.—*Berkhamstead* (III). In 5 minutes ·08 in. of R fell.

16th.—*Bishop's Lydeard* (V). Between 1 and 2.30 p.m. 1·60 in. of R fell.—*Bridgewater, Ashford* (V). In 55 minutes ·53 in. of R fell.—*Cheadle, The Heath House* (VI). Min. on grass, 33°·0.—*Hill Cliffe [Warrington]* (VIII). Between 4 and 6 p.m. 1·50 in. of R fell.—*Ystalyfera, Tan-yr-allt* (XI). A peal of T like the report of a cannon; the sun was shining brightly and the sky was cloudless.

16th.—Heavy R fell in N. Derbyshire, washing away much hay and causing the Derwent to overflow. At Rawsby the roads were impassable from the flood, and at Matlock the roads were washed up.

17th.—*Kensington, Addison Gardens* (I). TS at 6 p.m.—*West Bromwich* (VI). In 45 minutes ·59 in. of R fell.—*Hill Cliffe [Warrington]* (VIII). In 2 hours 1·50 in. of R fell.—*Dowlais, Cwm Bargoed* (XI). In a storm from 4 to 5.30 p.m. 2·09 in. of R fell.

18th.—*Kensington, Addison Gardens* (I). TS at 2 p.m., preceded by great darkness lasting 10 minutes.—*Farnham, The Bourne Vicarage* (II). R, 10 a.m. to 10.20 a.m., ·20 in.; 4.20 p.m. to 5.10 p.m., ·72 in.—*Great Marlow* (III). In 20 minutes ·39 in. of R fell.

19th.—*Finchley, Etchingham Park* (I). Heavy R; ·54 in. in half-an-hour.

20th.—*Stroud* (VI). In half-an-hour ·28 in. of R fell.—*Edinburgh, Blacket Place* (XIII). TS with heavy R, ·57 in., from 5.50 p.m. to 6.42 p.m.

22nd.—*Wallington* (II). TS; a boy killed at Carshalton.—*Bam-burgh* (X). Heavy R; ·60 fell between 3.15 and 3.35 p.m.—*Ballinasloe* (XXII). In 10 minutes ·25 in. of R fell.—*Londonderry, Knockan* (XXIII). Heavy TS.

23rd.—*Berkhampstead* (III). In 6 minutes ·07 in. of R fell.—*Derby, Elvaston* (VII). Very violent TS.—*Derrycastle* (XX). T, vivid L, H, and heavy R from 11 a.m. to 2 p.m.—*Hurdlestown* (XX). Violent TS.

24th.—*Coupar Angus* (XVI). Severe TS.—*Achonachie Lodge* (XVIII). A waterspout burst on the hill above here, and carried away four stone bridges between here and Strathconan.—*Ardkenneth* (XVIII). ·77 in. of R fell in one hour.—*Drumnadrochit* (XVIII). Violent TS from 2.10 p.m. to 8 p.m., with 1·47 in. of R, ·53 in. (partly large H) falling in the first 20 minutes. The L struck the crown of a pine-clad rock, injuring ten large trees, six of them within 10 yards of each other. *Cawdor* (XVIII). Violent TS.

25th.—*Ingleton, Halsteads* (IX). R 3·28 in., of which 1·53 in. fell between 11 a.m. and 4.30 p.m., 1.53 in. between 5.30 p.m. and 6.45 p.m., and the remaining ·22 in. later.—*Aysgarth Vicarage* (IX). Great flood, owing to a heavy TS up the dale (about 3 in. of R fell at Hawes Junction).—*Whorlton* (X). TS and the heaviest R remembered (2·31 in.), followed by a flood on the Tees on the 26th.—*Witton-le-Wear, Witton Tower* (X). 1·87 in. of R, of which 1·00 in. fell in 8 hours and ·45 in 3 hours.—*Sunderland, West Hendon Ho.* (X). R 2·26 in., the heaviest in one day since July 19th, 1859.—*Blencowe School* (X). A waterspout burst (? near Kirkoswald) and completely carried away (the surface of) three acres of land, together with sheep and bridges, the Raven being 2 ft. higher than ever before known.—*Shap, Copy Hill* (X). Heavy TS with H in evening; ·65 in. of R fell in 23 minutes.

26th and 27th.—*Newcastle West* (XX). 1·88 in. of R, and great damage from floods along the Deel valley.

26th to August 1st.—*Brentwood, Dudbrook House* (IV). 5·45 in. of R fell, accompanied by some heavy TSS.

27th.—*Hythe* (II). Heavy R, ·78 in. in two hours.—*Hazelbury Bryan* (V). In 1½ hours ·60 in. of R fell.—*Cushendun* (XXIII). Continuous R for about 25 hours after 2 p.m., followed by great floods.—

Stewartstown, Ardtrea Rectory (XXIII). R 2·14 in., the greatest on record.

29th.—*Ballinasloe* (XXII). In 30 minutes ·38 in. of R fell.

30th.—*Lansdowne Crescent* (I). TS at 3·12 p.m.; ·33 in. of R fell in 25 minutes.—*Kenley, Ingleside* (II). Between 0·20 and 1 p.m. ·48 in. of R fell, and between 6.5 and 6.30 p.m. ·97 in.—*Wallington* (II). Violent TS.—*Keston, Bradfield* (II). Severe TS, with ·74 in. of R between 5 p.m. and 5.55 p.m.—*Greenwich Observatory* (II). Violent R in afternoon and evening, more especially during a TS between 5 and 7 p.m.; total fall 2·49 in.—*Little Wittenham* (II). About 2.30 p.m. there was a heavy shower for about ten minutes; at 3 a sudden downpour began, and a little after 5 p.m. (about 2 hours and 20 minutes) the rain gauge was found to contain 2·95 in. Just above the rectory was a field of potatoes on the slope, and about an acre was completely washed away right over a clover field for about 150 yards, and against the hedge at the bottom were at least 50 cart loads of earth and stones.—*Great Marlow* (III). R 1·01 in., ·91 in. in a heavy storm of an hour's duration.—*Pyrton Manor* (III). TSS, with 1·59 in. of R; ·28 in. fell in 17 minutes.—*Little Ilford* (IV). Between 4 and 7 p.m. 1·85 in. of R fell.—*Upminster Hall* (IV). In half an hour 1·07 in. of R fell.—*Dunmow, High Roding* (IV). A TS began to be heard about 2.40 p.m.; R began about 2.45, and between that hour and 4.10 the fall was ·75 in. A good deal more fell afterwards, and the total for the 24 hours was 1·23 in.—*Dunmow, Saling Grove* (IV). Heavy TS and 1·24 in. of R.—*Weybread* (IV). TS 3.15 to 6 p.m.—*Diss* (IV). Violent TS; a horse, a heifer, and many sheep killed; ·91 in. of R in 75 minutes, and 1·31 in 24 hours.—*Long Stratton* (IV). 1·83 in. of R fell in 55 minutes.—*Aylsham* (IV). Between 5.20 p.m. and 7 p.m. 3·09 in. of R fell. A pond which measures $2\frac{1}{4}$ acres, in which the water was eight inches below the bank, overflowed in less than an hour.—*White Lackington* (V). R 1·41 in., of which ·37 fell in 20 minutes.—*Stowell* (V). Violent TS; ·89 in. of R in 3 hours, doing much damage to hay and causing floods.

31st.—*Horsley Towers* (II). Violent TS; 2·50 in. of R fell in 3 hours, causing the highest local flood remembered, the road to the station at E. Horsley being flooded and fish washed out of ponds in the park and caught in the road 500 yards below.—*Long Wittenham* (II). 1·40 in. of R fell between 3 p.m. and 5 p.m.—*Cadoxton* (XI). Heavy H storm.

31st and August 1st.—*Maidstone, Mount House* (II). Between

5 p.m. on 31st and 5 p.m. on August 1st 2·68 in. of R fell.—*Little Ilford* (IV). The R of the two days (3·96 in.) caused a flood in the River Roding, which burst the embankments and swamped the lowlands for miles. Such a disaster had not occurred since 1824.

AUGUST.

1st.—*Kensington, Addison Gardens* (I). TS at 10.30 p.m. and ·94 in. of R.—*Lansdowne Crescent* (I). Heavy TS 9 to 10 p.m., followed by the greatest R (·88 in.) of the year.—*Finchley, Etchingham Park* (I). Heavy R, 1·66 in., 1·53 in. falling after 6 p.m.—*Sandhurst Rectory* (II). Between 5.30 and 7.30 a.m. three inches of R fell.—*Maidstone, Mote Park* (II). Between 9 a.m. and noon 1·50 in. of R fell.—*Keston Tower* (II). Between 6.30 and 7.30 p.m. ·90 in. of R fell.—*Rochester, Hoo St. Mary* (II). Severe TS; two waterspouts were seen near here.

2nd.—*Meltham, Harewood Lodge* (IX). Nearly pitch dark about 12.30, and shortly before 1 p.m. a heavy TS broke with very brilliant L; R in gauge nearly black.—*Shap, Copy Hill* (X). Heavy H storm at 11.10 a.m., some of the H stones being as large as nuts and quite hard.

6th and 7th.—*Hartland Abbey* (V). Fog.

7th to 9th.—*Ashburton, Druid* (V). Fog.

10th.—*Douglas, Victoria Road* (XI). Fog all day, quite dark at 2 p.m.

11th.—*Penrith, Kirkland* (X). Helm wind.

12th.—*Bushmills* (XXIII). In eight hours 1·66 in. of R fell.—*Moville Rectory* (XXIII). A R quite tropical in character, 2·02 in., causing serious damage and carrying away bridges.

17th.—*Thixendale* (IX). Sleet at 10 p.m.

18th.—*Rushall Vicarage* (IV). Temp. at 4 ft. fell to 31°.

19th.—*Thixendale* (IX). Temp. 4° below freezing point, cutting off marrows and beans.

20th.—*Kilkishen* (XX). T, L, and heavy R, ·86 in. in 105 minutes.—*Edgeworthstown, Currygrane* (XXI). In 33 minutes ·70 in. of R fell.

21st.—*Olney, Filgrave* (III). In about two hours ·93 in. of R fell.—*Sedgbrook, Pitsford* (III). Heavy storm with T and L, R from 4.56 p.m. to 5.23 p.m. ·17 in.—*Chelford, Astle Hall* (VIII). In seven minutes ·63 in. of R fell.

23rd.—*Miltown Malbay* (XX). Heavy gale from S.

24th.—*Diss* (IV). Heavy TS in evening.—*Shap* (X). Strong S.W. gale.

25th.—*Sudbury* (IV). In one hour ·56 in. of R fell.

26th.—*Melrose, Abbey Gate* (XII). T and heavy R, ·27 in. in seven minutes.

27th.—*Thixendale* (IX). Some men struck down by L.

27th and 28th.—*Burton, Derby Road* (VI). Incessant R for 12 hours from 4 p.m. on 27th, 1·39 in.—*Derby, Elvaston* (VII). Heavy R and TSS.

28th.—*Lansdowne Crescent* (I). S.W. gale and heavy R (·77 in.) between 3 and 6 p.m.—*Berkhampstead* (III). R all day, westerly gale at night.—*Sedgebrook, Pitsford* (III). Heavy R all day, and the night stormy, with half a gale from the S.W.—*Ipswich, Bishop's Hill* (IV). Severe TS.—*Bromfield Vicarage* (VI). R 1·97 in., of which 1·59 in. fell between 9.30 a.m. and 4 p.m.—*Worcester, Hawford Lodge* (VI). R 1·76 in., which fell in about one-and-three-quarter hours during a heavy TS.—*Llandovery* (XI). Heavy R, 2·33 in., and the heaviest flood known; water in the streets from 2ft. to 4ft. deep.—*Llanwrtyd Wells* (XI). Heavy R all day 3·15 in., and the greatest flood in the river within memory; 1·01 in. fell on 27th.—*Abergwessin* (XI). Heavy R 2·09 in., 1·96 in. fell in three-and-a-half hours.—*New Radnor, Downton* (XI). Remarkably heavy R, 2·47 in., of which 1·97 in. fell in six hours ending 3.30 p.m.—*Ednol* (XI). Remarkably heavy R, 2·13 in., between 9.30 a.m. and 3.30 p.m.

28th.—Heavy R fell throughout Herefordshire and upon the upper reaches of the Wye, and on the morning of 29th the old gauge at Wye-bridge, Hereford, registered a rise of 13 ft., and by two o'clock the flood had reached 14 ft., the highest recorded since December 10th, 1886. The bridges over the Yrfon at Llangammarch and Llanynis were carried away, and more or less damage occurred all along the Wye and its tributaries.

29th.—*Emsworth, Redlands* (II). In 20 minutes ·22 in. of R fell.—*Stowell Rectory* (V). TS from noon to 2 p.m.—*Ross, The Graig* (VI). TS with H, and great flood on the Wye, 11 ft. 6 in.—*Melrose* (XII). Very heavy R and H at 3.20 p.m.

30th.—*Kensington, Addison Gardens* (I). TS 2.15 to 2.45 p.m.

SEPTEMBER.

1st.—*Killybegs* (XXIII). 1·33 in. of R fell in 10 hours.

1st and 2nd.—*New Radnor, Downton* (XI). S commenced falling at 10 p.m. on 1st, and by 7 a.m. on 2nd was four inches deep.

3rd.—*Berkhampstead* (III). In 10 minutes ·19 in. of R fell.

5th.—*Dumfries, Ivy Bank* (XII). R 1·02 in., most of which fell during a TS between 3 and 3.45 p.m., flooding some cellars and roadways.

7th.—*Oxford, Magdalen College* (III). Several heavy peals of T at 3.30 p.m.—*Rendlesham Hall* (IV). TS at 3 p.m.—*Bishop's Cannings* (V). T and H.—*Stowell Rectory* (V). TS.—*Cheltenham* (VI). TS with H.—*Knutsford* (VIII). TS at 1.30 p.m.

9th.—*Wallington* (II). Much L at night.—*Reading, Portland Place* (II). T, H and R.—*Banbury, Bloxham* (III). Heavy T and R at 3.30 p.m.—*Stowell Rectory* (V). TS.

11th.—*Lower Walmer* (II). Between 1·45 and 2.30 p.m. 1·08 in. of R fell, flooding Deal so that skiffs rowed up High-street. The storm finished with H, which quite covered the ground, and was accompanied by distant T.

13th to 15th.—*Wallington* (II). Thick fog early.

14th.—*Berkhampstead* (III). During this and the three preceding days 34 hours of clear sunshine were recorded.—*Miltown Malbay* (XX). Strong southerly gale.

14th and 15th.—*Southend* (IV). Fog.

19th to 22nd.—*Twyford* (XXI). Fog.

20th to 23rd.—*Walton-on-the-Hill* (VIII). Fog.

21st and 22nd.—*Derrycastle* (XX). Very dense fog.

22nd and 23rd.—*Barton Hall* (X). Fog.

23rd.—*Berkhampstead* (III). Dense fog in the evening. Atmosphere very calm, total movement in 24 hours 39 miles.

24th.—*Rochester, Hoo St. Mary* (II). Severe TS.—*Lavenham Hall* (IV). The oldest inhabitants agree they never witnessed such a down-pour of R. I was about 10 miles off and remarked, from the appearance of the cloud and L, that "we were having a great R at Lavenham." From enquiries I have made I am satisfied that 1½ in. of R fell in half-an-hour. My gauge was empty that morning, and after the R it indicated a fall of 1·62 in. Houses were flooded, and roads nearly stopped by banks slipping in. It commenced, as near as may be, at 3.20, and left off at 3.50 p.m., it was accompanied by terrific T and L.—*Teignmouth, Woodway* (V). Distant TS.—*Melmerby* (X). Helm wind.

30th.—*Scarborough* (IX). N.W. gale and very cold.—*Barton Hall* (X). S.—*Douglas, Victoria Road* (XI). Bitter N. wind with H and sleet.—*New Galloway, Glenlee* (XII). S, yielding ·25 in.—*Glendrishraig*

(XIV). H, and the hills white with S.—*Aberdeen, Cranford* (XVII). Strong N.N.W. gale.—*Glenaladale* (XVIII). S on hills.—*Watton H.R.S.* (XIX). Gale from N. with R and H.

OCTOBER.

1st.—*Otterburn-in-Craven* (IX). S from 9 to 12 o'clock, yielding .25 in.—*Thixendale* (IX). Fall of S.—*Shap* (X). Heavy fall of S.—*Llanwrtyd Wells* (XI). S at night.—*Newbridge, Llysdyham* (XI). S storm, doing great damage to trees.—*Rhayader, Nantgwillt* (XI). Heavy fall of S.—*Llanidloes, Broomcliffe* (XI). About 4 in. of S fell at night.—*Welshpool, Pool Quay Vicarage* (XI). Long mountain white with S.

2nd.—*Chepstow, Shirenewton Hall* (XI). S 2 in. deep on the hills.—*Crickhowel, Gwernvale* (XI). S visible on the mountains.

3rd.—*Rochester, Hoo St. Mary* (II). Ice $\frac{1}{4}$ in. thick, a most unusual occurrence.—*Berkhampstead* (III). Temp. in shade 23°. The havoc made in the garden by this frost was extraordinary; a large walnut tree had every leaf destroyed and every walnut on it frozen through.—*Southwell* (VII). Flowers killed by frost.—*Thixendale* (IX). Ice $\frac{1}{2}$ in. thick.

3rd to 5th.—*Glenaladale* (XVIII). S on hills.

4th.—*Thixendale* (IX). Hasty falls of S, stopping harvest.—*Drum-na-drochit* (XVIII). S on low ground.

5th.—*Sheppey, Leysdown* (II). Gale from S.W.

10th.—*Hitchen* (III). The sun was shining brightly, when, about 3.30 p.m., a very dark cloud came up from the N.E. along the valley of the Ouse; it was impossible to distinguish any object 10 yards off. The owls, bats, and beetles all came out and the pheasants went up to roost.—*Derby, Elvaston* (VII). Remarkable phenomenon; total darkness from 3 to 3.20 p.m.

12th.—*East Budleigh* (V). R 1.72 in., causing the highest flood in the Otter since 1851.

16th to 18th.—*Banbury, Bloxham* (III). Dense fogs.

17th to 19th.—*Northampton* (III). Dense fogs.

20th.—*Derby, Elvaston* (VII). Thick fog in morning.

24th.—*Aysgarth Vicarage* (IX). River Yore lower than ever before in 15 years.

24th.—Owing to the continued dry weather the water supply of the burgh of Dalbeattie is exhausted, and the householders have been without water for about a week.—*Scotsman*.

25th to 27th.—*Longsleddale* (X). R 7·16 in., followed by great floods on the latter date.

26th to 28th.—*Shap* (X). Strong gale, with 7·01 in. of R in the three days.

27th.—*Bownes, Fallbarrow* (X). R 2·45 in.; the heaviest for 7 years. — *Ambleside, Lesketh Howe* (X). The heaviest R measured during 20 years (4·08 in.)—*Patterdale Hall* (X). R 4·45 in., more than an inch larger than any other fall in 24 hours during ten years.

28th.—*Keswick, Barrow House* (X). R 4·00 in., the largest record in one day since the gauge was fixed in 1867.—*Keswick, Derwent Island* (X). An exceptional flood, Derwentwater standing at noon 8 ft. 1 in. above its level at 9 a.m. on the 25th.

28th.—A whirlwind occurred in the neighbourhood of Holme, Orkney, accompanied by severe T and L, and hailstones described as large pieces of ice. Carts and stooks were overturned, and much glass was broken by the H.

NOVEMBER.

1st.—*Ashtead, D'Abernon Chase* (II). A London darkness came over about 1 p.m., necessitating lights; it passed off in a few minutes.

3rd.—*Finchley, Etchingham Park* (I). Extraordinary darkness caused by high fog from 0.30 to 1.30 p.m.

7th.—*Ashburton, Druid* (V). S, hills white.

11th.—*Lansdowne Crescent* (I). Remarkable gloom at 1 p.m.

12th.—*Bath, Lit. Inst.* (V). R 2·05 in., the greatest since 1882.—*Ashburton, Druid* (V). Heavy R, 2·14 in.; 1·76 in. fell between 9 a.m. and 6 p.m.—*Bincombe* (V). Very heavy R, 1·32 in. fell between 11 a.m. and 8 p.m.—*Coupar Angus* (XVI). Heavy R, 1·52 in., and rivers flooded.—*Holywood Waterworks* (XXIII). In about six hours 1·98 in. of R fell.

12th and 13th.—*Ludlow, Ashford* (VI). R 1·96 in. in the two days. The river had been bank full, more or less, since the 4th, but was clearing on 12th, when it began to rain about 2 p.m., and rained incessantly till 10.30 a.m. on 13th. About mid-day a very black cloud came over, making it very dark, and it began to rain again heavily, and lasted till nearly 2 p.m., and very lightly till after 7 p.m. The river rose rapidly during the night of 12th, but not very fast between 8 a.m. and noon on 13th, steadily after that till between

1 and 2 a.m. on 14th, when we had about one foot of water in our cellar.

13th.—*Orleton* (VI). R commenced on the evening of 12th, and continued about 27 hours, 1·81 in. falling, followed by great floods on the Teme and Severn.

15th.—*Antrim, The Manse* (XXIII). Strong gale.

16th.—*Alnwick, Belle Vue* (X). W.S.W. gale, and much damage to property, trees, &c.—*Edinburgh, Blacket Place* (XIII). Great storm. Stevenson's screen blown down at 11.15 a.m. Wind velocity averaged 54 miles an hour from 9 a.m. till noon.

16th and 17th.—*Derby, Elvaston* (VII). S.W. gales.

17th.—*New Galloway, Glenlee* (XII). T, L, and heavy H showers.—*North Esk Reservoir* (XIII). T and L.—*Stronvar* (XVI). T, L, and H.

19th.—*Aviemore H.R.S.* (XVIII). Three inches of S.—*Miltown Malbay* (XX). N.W. gale with T, L and H.

20th.—*Littlehampton* (II). T, H and R.—*Coston Rectory* (VII). Tremendous gale with S and sleet.—*Meltham, Harewood Lodge* (IX). T, L and H between 0.30 and 0.35 p.m.—*Melrose* (XII). Stormy with L and sleet. Hills white with S.—*Colmonell* (XIV). T and H storm.—*Watten H.R.S.* (XIX). Severe TS 3 to 5 p.m.

24th.—*Sheppey, Leysdown* (II). S.W. gale.

25th.—*Berkhampstead* (III). In five minutes ·08 in. of R fell.

26th.—*Hythe* (II). Heavy R squall at 5.30 a.m., which lasted about 30 minutes, ·86 in. of R falling.—*Bishop's Cannings* (V). Heavy TS at 5 p.m. with fierce squalls of R and H.

26th and 27th.—*Ashburton, Druid* (V). TSS with heavy H on the latter day.

27th.—*Edenbridge, Falconhurst* (II). Between 9 and 10 a.m. ·75 in. of R fell.—*Sheppey, Leysdown* (II). S. gale.—*Derby, Elvaston* (VII). Heavy S.W. gale.

28th.—*Berkhampstead* (III). Dense fog at 10 a.m.; a house became invisible at 16 yards.

28th and 29th.—*Babbacombe* (V). L.

DECEMBER.

2nd and 3rd.—*Langholm* (XII). In the two days 2·49 in. of R fell, causing the greatest flood in the Esk since October 7th, 1886.—*Stronvar* (XVI). Heavy R, 3·11 in. in the two days.

6th.—*Langholm* (XII). Bees out and many plants in flower.

7th.—*Wallington* (II). Red poppies in bloom.

15th to 17th.—*Emsworth* (II). Wet fog.

17th.—*Berkhampstead* (III). Dense fog all day, a house became invisible at 23 yards.

21st.—*Cork, Clarence Place* (XX). The heaviest R (1·80 in.) since September 1st, 1883.

24th.—*Miltown Malbay* (XX). Heavy R, ·50 in. in 1½ hours.

25th.—*Hadfield, Millbrook* (VIII). Heavy H, T, and L.—*Coolkelure* (XX). Violent wind with T, L, R, and H at 7.30 a.m.

26th.—*Melrose, Abbey Gate* (XII). Hills white with S.—*Stronvar* (XVI). S 3 in. deep.

27th.—*Sheppey, Leysdown* (II). S.W. gale at night.—*Bincombe* (V). Heavy gale with T.—*Pembroke, Marston* (VI). R 1·65 in. between 10 a.m. and 10 p.m., causing the highest flood since May 13th, 1886.—*Ludlow, Ashford* (VI). An extraordinary fall of R, 1·94 in., much of which fell in a very short time soon after midnight, though it was wet all day. Coming after a slight frost, the water hurried into the river and caused another heavy flood on the 28th, not quite so great as that of November 13th. Where it could not get away the water lodged in the fields, and old men tell that they had never seen water so much lodged.—*Orleton* (VI). Great local fall of R (1·31 in.), producing a great flood on the Teme and its tributaries and causing the loss of a great number of sheep.

27th and 28th.—*Burton, Derby Road* (VI). Heavy R, ·95 in. The Trent overflowed its banks and continued in flood till after the end of the year.—*Derby, Elvaston* (VII). River Derwent in high flood.

28th.—*Glenaladale* (XVIII). Deep S on the high hills.

OBSERVERS' NOTES ON THE MONTHS.

JANUARY.

I. *Lansdowne Crescent*. The driest January during seven years ; cold from 11th to 20th and from 27th to 31st ; frost on 15 nights.—*Muswell Hill*. R only 45 per cent. of the average of 16 years, though falls were recorded on 15 days, the max. fall being only .21 in.—*Finchley, Etchingham Park*. Very dry. R fell on 5 days, S on 4, and fog yielded a measurable quantity on 3 days.

II. *Dorking, Abinger Hall*. The weather, though changeable, was not severe, and very little S fell, but fog prevailed almost continuously for a week, commencing on 9th, being very dense on some days.—*Wallington*. R 1.31 in. below the average of 6 years. Being dry with very little frost, the month was favourable for farming. Humidity, 91 ; amount of cloud, 6.9 ; sunlight, 55 hours ; 12 sunless days.—*Hythe*. Dry and wintry ; fog prevalent in the second week ; S on 5 days.—*Keston Tower*. Very little R and hardly any S. Temp. about the average ; 15 frosty nights.—*Littlehampton*. Temp. low ; very little R and very little S, but an unusual amount of fog.

III. *Berkhampstead*. With one exception (1880) the driest January during 33 years. S fell on only 5 days, and was never more than half-an-inch deep.—*Buntingford, Throcking Rectory*. The smallest R since 1880.—*Banbury, Bloxham*. Remarkable for the small R, the number of bright days, and the very dense fogs from 11th to 14th ; frost on 16 nights.—*Northampton, Hazlewood Road*. R less than half the average of 22 years ; dense fog on 6th, 10th, 11th, and 12th. Gale at night on 31st.

IV. *Harlow, Sheering*. R 1.29 in. below, and little more than one-third of, the average of 20 years.—*Ipswich, Bishop's Hill*. R .82 in. below the average ; very mild till the 25th, then cold to the end, with slight S showers ; unusually thick fog on 11th, 12th, and 13th.—*Weybread*. Dry, less than .25 in. of R in the first half. Fog yielded .01 in. on 10th and 11th. A remarkable absence of wind, (excepting

the 26th, when a N.W. gale blew), for there were 11 days when force 0 was recorded ; on 29th S lay 5 in. deep.—*Diss.* The weather till the 25th was warm and misty. There was a gale from S. at night on the 4th, and rather heavy fogs on the 11th and 12th, when the extreme humidity of the air and its close warmth were remarkable. On the 25th hard winter weather returned with a heavy gale from W. on 26th and 27th, and S storms to the end of the month.

V. *Torquay, Babbacombe.* Rather cold and variable with high pressure ; very small R, but great humidity ; total R only 26 per cent. of the average. The max. temp. in shade was higher, and the number of foggy days was greater than in any of the preceding 11 Januarys. Showery from 1st to 10th and 25th to 31st ; unprecedentedly foggy and damp from 8th to 14th ; E.N.E. gales on 15th and 16th.—*Brampford Speke.* Much high wind and fog.

VI. *Cirencester, Further Barton.* Dry and cold ; frost often severe ; much fog from 6th to 14th.—*Ross, The Graig.* The driest January (R .69 in.) since 1859, except 1880. Temp. below the average, though there was little skating, and there were three days with a max. above 55°, which is higher than anything previously recorded in January. Very high pressure from 7th to 20th. Dense fog from 9th to 13th.—*Burton, Derby Road.* The first half of the month was mild and damp, the second on the whole cold. A dense fog prevailed from 9th to 14th inclusive, and a violent gale blew from N.W. from 25th to 27th. R .98 in. below the average of 12 years.—*Hoar Cross.* The first part of the month was dry and warm, especially the 9th ; very heavy fogs occurred from 8th to 13th, and sharp frosts in the latter part.—*Coventry, Coundon.* R (.78 in.) the smallest in January during 21 years with the exception of 1880 (.51 in.) Water supply very short in this neighbourhood.

VII. *Coston Rectory.* Very dry, more than half the R falling on the first two and the last two days. Temp. very variable ; high pressure with much fog from 9th to 19th ; the last nine days very cold, the max. temp. on six being below 32°.—*Stamford, Ketton Hall.* Changeable with a very small R ; pressure very high from 8th to 21st, but temp. low throughout, except from 7th to 10th. Strong gale on 26th.—*Bucknall, Horncastle.* The extraordinary dryness of 1887 was continued throughout this month.—*Mansfield.* Very changeable, with many frosty nights and dull dirty days. R 1.85 in. below the average of 18 years, and the smallest registered in January. Pressure very high on 10th ; thick fogs from 10th to 14th ; S on 3

days; high wind on 3 days.—*Worksop, Hodsock Priory*. Dry and rather calm, with high pressure and average temperature and sunshine. Unusually dense fog prevailed from 10th to 14th. The max. shade temp. ($59^{\circ}4$) was the highest recorded in January. No S on the ground until the last day.—*Derby, Elvaston*. Dry and generally quiet until the 25th; 17 frosty nights.

VIII. *Walton-on-the-Hill*. R very small, more than one inch below the average.

IX. *Leeds, Oliver Hill, Horsforth*. Very dry and with a high mean max. temp.—*East Layton*. Very dry and fine. Bees out on 8th and 9th, and carrying pollen off the Christmas rose as early as 9.30 a.m. A little S and frost during the last few days. Springs very low for the time of year.

X. *Uldale Rectory*. A very open month, remarkably free from S.

XI. *Castle Malgwyn*. Very fine and dry, with S only on the last day.—*Douglas, Victoria Road*. Fine and open. High temp. occurred from 7th to 13th (exceeding 50° on 8th and 9th), accompanied by damp foggy weather, the air being completely saturated. Cold, with severe frost, S and H from 27th to the end.

XII. *Melrose, Abbey Gate*. R $1\cdot04$ in. below average; temp. $1^{\circ}1$ above average. Wind S. or W. on 21 days, N. or E. on 10 days; moderate in force. Frost on 28 days, S on 8, fog on 4 days.

XIII. *Edinburgh, Blacket Place*. Mild and dry, no very cold days. Frost on only 9 days.

XVI. *Dollar*. Dry and fine with a few slight frosts.—*Coupar Angus*. Much fog about the middle of the month; frost on 17 nights.—*Stronvar*. Mild on the whole, but temp. very variable. Three inches of S on 1st.

XVIII. *Loch Shiel, Glenaladale*. Generally a beautiful month, but the first week very wet and rather stormy. S on 4 days.

XIX. *Watten H.R.S.* First three weeks exceptionally fine and mild, last week stormy.

XX. *Dunmanway, Coolkelure*. The month, with the exception of the last two or three days, was singularly mild, like a warm April.—*Killarney*. Comparatively dry and mild, but on the 3rd and 4th an exceptionally heavy R occurred in Kerry, $4\cdot40$ in. fell at Killarney in about 40 hours, at Derreen $3\cdot96$ in., at Kenmare $3\cdot50$ in.—*Derry-castle*. A favourable winter month, the R being $1\cdot35$ in. below the average of 9 years. No heavy S storms or gales, and no severe frost. The first week sloppy and unpleasant, dry from 9th to 19th, then

foggy and rainy till 27th.—*Castle Lough*. Temp. variable, but on the whole high. No R fell from 6th to 19th inclusive, and it was the twelfth consecutive month with less than the average R.—*Newcastle West*. Exceptionally dry and fine; no S, and ice did not hold for 24 consecutive hours.—*Miltown Malbay*. Excepting the first six days, the finest and driest January remembered. The ground very dry, and springs and streams much diminished.

XXI. *Broadford, Hurdlestown*. A fine month on the whole. The first 5 and last 10 days were wet and cold, but from 6th to 19th was very mild and fine.—*Edgworthstown, Currygrane*. On the whole the month was fine and suitable for farming operations.

XXII. *Galway, Queen's College*. Weather very changeable.—*Woodlawn*. Very mild throughout.—*Lawderdale*. Mild and dry.

XXIII. *Belfast, New Barnsley*. Altogether an open month, good for outdoor labour. S, sleet, R, and frost alternating till 5th; fine with occasional fog till 20th, then variable to the close.—*Stewartstown*. R below the average.

FEBRUARY.

I. *Lansdowne Crescent*. Very cold and dry, with a prevalence of N. and N.E. winds. Frost on 19 nights.—*Muswell Hill*. R barely 47 per cent. of the average of 16 years; S fell on 10 days, yielding on the 13th .42 in.

II. *Godalming, Witley*. S fell on 9 days and lay on the ground for about 3 weeks.—*Abinger*. The first part of the month was very mild and genial, but it changed suddenly, and after about the 10th was very wintry with frequent falls of S.—*Wallington*. Very cold, checking vegetation. R little more than half the average; duration of sunshine 30 hours, 9 days being sunless.—*Hythe*. Unusually wintry, frost on 22 nights.—*Keston Tower*. The month opened with two days of frost, which also prevailed from 11th to the end, with frequent S and strong winds from N. and E.—*Littlehampton*. Not an inch of S on the ground at any time, nor the ground once covered all day.—*Emsworth, Redlands*. Severe frost all the month with strong winds and gales from N. and E.

III. *Broxbourne*. Biting northerly winds nearly all the month, with S on 14 days and scarcely any sunshine.—*Berkhampstead*. S fell on 16 days, and after the 12th always lay to a depth of from 2 to 5 in.—*Banbury, Bloxham*. Remarkable for the low temp. and frequent

falls of S. On 13th and 14th about ten inches fell, and the wind being high huge drifts were formed, which were but little wasted at the close of the month.—*Northampton*. S commenced on 12th and continued more or less till 29th, heavy drifts in some places making the roads impassable. Total R $\cdot 22$ in. above the average; wind N.W. till 12th, afterwards N.E.—*Podington*. Almost the whole of the fall in this month was snow.—*Cambridge, Beech House*. Mean temp. 6° below the average of 17 years.

IV. *Sheering*. R $1\cdot 17$ in. below the average of 20 years.—*Woodbridge, Melton*. Frequent severe frost, and constant S storms, but never more than four inches on the ground at one time.—*Weybread*. Bitterly cold and much overcast; from 14th to 18th and from 25th to 29th inclusive entirely overcast. Frost on 25 days; S on 7 days. A little skating at the end. Easterly winds on 17 days.—*Diss*. Very cold, but with no long continued frosts, so that there was little skating. In the early morning of 1st the temp. at 4 ft. fell to 6° . Snowstorms with cutting N.E. winds were very frequent after the 12th, but there was little drift, and traffic was nowhere greatly impeded.

V. *Bishop's Cannings*. From 3rd to 11th very mild; from 13th to the end very severe. The roads here, being very exposed, were three times impassable by S blown from the open fields.—*Torquay, Babbacombe*. Very cold and dry, with rather high pressure. The coldest month since January, 1881. The mean temp. was lower, the R and humidity less, the number of frosty nights and of snowy days were more than in any other February for 11 years.—*Pilton*. Very cold and stormy with heavy S and very deep drifts, some of the lanes impassable; very heavy seas on Barnstaple Bar.—*Bincombe*. Very cold and dry, with S storms on 14th and 15th.

VI. *Cirencester, Further Barton*. Remarkable for low temp. and cold N.E. winds. A heavy fall of S occurred on 13th and 14th, with high wind, rendering the roads almost impassable from drifts.—*Cheltenham*. Temp. fairly high in the early part of the month, but low from 12th to the close, the mean being $4^{\circ}7$ below the average. S on 14 days, frost on 21 days.—*Ross, The Graig*. The coldest February, with the exception of 1886, since 1873, the mean of the max. and min. being $35^{\circ}6$, while in 1886 it was $34^{\circ}7$ and in 1873 $35^{\circ}0$; there was, however, one very warm week (4th to 10th). The mean temp. of the last 18 days was only $31^{\circ}9$. The S fall was never more than six inches deep, but some roads were blocked by drifts.

The third February with deficient R, following seven Februarys in succession with more than the average.

VI. *The Clive Vicarage*. Wind steady at N. with slight variations to N.E. from 11th to 29th. The supply of rain water in tanks as low as in the driest summer, one tank having failed which has only twice failed previously in 15 years.—*Burton, Derby Road*. The weather up to the 13th was damp and mild, but from thence to the end dry and bitterly cold, N.E. and E. winds blowing, accompanied by frequent S showers. Mean temp. $4^{\circ}8$, and R 1.56 in., below average.—*Hoar Cross*. S on 14 days, frost on 22 days.

VII. *Coston Rectory*. Very cold, with the exception of the 3rd to 12th inclusive. The S fall very heavy, and the roads blocked by drifts in all directions. Constant N.E. wind from 14th to 29th.—*Ketton Hall*. Remarkable for a heavy fall of S on 13th, 14th, and 15th, which was augmented several times after, the ground remaining covered to the end of the month. Only one bright day, the 1st; pressure very variable.—*Horncastle, Bucknall*. Very wintry after 11th, with continuous E. wind after 14th. Total fall of S about twelve inches.—*Mansfield*. With the exception of a few mild days in the first week, cold and uncomfortable with N. and N.E. winds. The 14th consecutive month of deficient R; S on 15 days.—*Worksop, Hodsock Priory*. Very cold, with large excess of northerly winds, but average amount of sunshine. The mean temp. was $4^{\circ}5$ below the average, and lower than in any of the previous 12 Februarys, except 1886. Downfall rather deficient and chiefly S, which lay on the ground during the first few days and from the 14th to the end.—*Derby, Elvaston*. Variable but rather dry on the whole. Moderately mild during the first part, but very cold and wintry afterwards; 18 frosty nights.

VIII. *Macclesfield*. Very cold, with much S and E. wind; R only 66 per cent. of the average of 37 years.—*Walton-on-the-Hill*. Very cold throughout; R considerably below the average.—*Broughton-in-Furness*. The fourteenth month of drought.

IX. *Scarborough*. Very mild and fine till 10th; from 14th to the end stormy, with cold N.E. wind and much S.—*East Layton*. Very wintry, except from 5th to 12th.

X. *Whorlton*. Very cold, with much S and N.E. winds.—*Uldale Rectory*. Very changeable, with small R; never more than 6 inches of S on the level, and no blocks on the roads.—*Shap, Copy Hill*. Seasonable, with severe frost at times; S almost daily from 10th to

26th, with E. or N.E. winds and some drifts. Water getting scarce at the close.

XI. *Llanfrechfa*. Very warm until 11th, thence to the end very cold ; S on 7 days.—*Llechryd, Fernhill*. Very fine, with no S of any consequence ; R much below the average, the river Tivy very low.—*Douglas, Victoria Road*. Mild and spring-like till 9th, then continuously cold to the end ; S on 6 days and R on 3, the total fall being probably the smallest on record.

XII. *Melrose*. R .42 in., and mean temp. 4°·6, below average ; frost on 27 nights, S on 16 days ; wind S. or W. on 15 days, N. or E. on 14 days.

XIII. *Edinburgh, Blacket Place*. Cold and dry, rather mild from 2nd to 9th, very cold on 16th.

XIV. *Glendrishraig*. Remarkably mild, the frost, though of some duration, being never severe ; an inch or two of S fell on 12th and 13th, but there was little drifting.

XV. *Stirling, Kippen*. R the smallest in any month during five years.

XVI. *Coupar Angus*. R very small and temp. low ; frost on 22 nights.—*Stronvar*. Though there was much frost it was never severe, and there were no heavy falls of S ; very cold E. winds in the latter part.

XVIII. *Glenaladale*. The first ten days were wet, followed by beautiful weather to the close (excepting a heavy snowstorm on the 12th), the last half of the month being remarkably calm, and generally bright and sunny.

XIX. *Watten H.R.S.* Unsettled and boisterous, though not severe.

XX. *Dunmanway, Coolkelure*. The driest February remembered.—*Killarney*. Dry and cold.—*Derrycastle*. Very harsh, and the driest recorded in ten years ; generally foggy at night till 10th, then harsh and chilly to the close, with frequent falls of light dry S and frost every night ; wind chiefly N., N.E., or N.W.—*Nenagh, Castle Lough*. Mild and misty till 11th, succeeded by S showers, alternating with sharp frost and bitter N. and E. winds. The thirteenth consecutive month with R below the average.—*Newcastle West*. Instead of filling the ditches, this month necessitated drawing water for such cattle as were not housed.—*Kilkishen*. Dry, with cold nights after 11th.—*Broadford, Hurdlestown*. The driest month recorded, with cold winds and severe frost.—*Miltown Malbay*. Calm and mild to the 9th, with sea fog and mist, and vegetation springing freely ; thence to the end

cold, frosty, and dry, with the exception of two heavy falls of S. Although R or S fell on 19 days, the total was far below the average, the ground was remarkably dry, and rills had little water in them.

XXI. *Edgworthstown, Currygrane*. Extraordinarily dry, with cold parching wind; very favourable for farming operations.

XXII. *Lawderdale*. Cold and dry.

XXIII. *New Barnsley*. Sleet and S on 2nd, then fine till 7th, followed by sleet, S, and frost till 18th, the remainder of the month being fine but cold.

MARCH.

I. *Lansdowne Crescent*. R about twice the average; temp. low, excepting between the 5th and 12th; frost on 16 nights.—*London, Camden Road*. The wettest March recorded in 13 years.—*Muswell Hill*. R nearly two-and-a-half times the average of March for 16 years, and by far the largest recorded during that period. The first six days were dry, but R or S fell daily afterwards (except 21st), the amounts exceeding .25 in. on 9 days.—*Finchley, Etchingham Park*. Very wet after the first week, which was rainless.

II. *Abinger Hall*. Very wet and cold; vegetation scarcely moved.—*Wallington*. Very wet and cold, with a great prevalence of N. winds and S showers; R 2.20 in. above the average of 6 years; nine days were sunless.—*Hythe*. Extremely severe.—*Keston Tower*. Very cold and disagreeable, with much S; severe E. winds and N.E. gales between 12th and 22nd.—*Littlehampton*. Very cold, yet very little S, only once enough to lie for 24 hours.—*Lewes, Iford*. Wet, cold, and miserable, only eight fine days.

III. *Berkhampstead*. The wettest March for 26 years; S fell on 17 days, and at one time was 4 in. deep.—*Buntingford, Throcking*. The heaviest R in March during nine years.—*Bloxham Grove*. The first week, although very cold, was fine and pleasant, with skating going on. The remainder of the month was cold and gloomy in the extreme, with frequent and heavy falls of S.—*Northampton*. Generally cold throughout, but a few mild summer days; N.E. winds prevalent, R 1.18 in. above the average.—*Podington*. In the latter half of the month 2.94 in. fell in the form of S in seven days.

IV. *Sheering*. R 1.63 in. above, or more than twice, the average of 20 years.—*Ipswich, Bishop's Hill*. R more than double the average, chiefly S and sleet, with very low temp.—*Woodbridge, Melton*. Very

severe, with frequent S storms.—*Rendlesham Hall*. The wettest March for many years, with more S than for a long period.—*Weybread*. Very cold, wet, and dull, all vegetation very backward; no spring corn able to be sown. S on five days; frost on 24; river in flood on 14th; easterly winds on 17 days.—*Diss*. Very bleak and wintry, with much S and low temp., but no long-continued extreme cold, so that the large quantity of S did not cause much inconvenience by drifting. From 7th to 11th inclusive there were heavy gales from S.W. and S.E., and the nights were very cold throughout; S on ten days. The water supply has been short, and many pumps have been dry, so that the increased R was very acceptable, and in the form of S it penetrated and remained in the soil more effectually than it would have done in the form of heavy rains.

V. *Bishop's Cannings*. Very cold on 1st, mild from 6th to 11th, then mostly cold, with E. winds and constant small falls of S.—*Babbacombe*. Cold, wet, and cloudy, with very low pressure; R the greatest in March during 12 years; gales on five days; S on eight days; H on three days.—*Bincombe*. Very wet, cold, and stormy.

VI. *Further Barton*. Most winterly; much frost, frequent S storms, and very little sunshine.—*Ross, The Graig*. The wettest March, with the largest amount of S, since 1867, the R being more than double the average. Temp. slightly above the average from 5th to 11th, otherwise almost constantly low, but not so severe as in 1845. Vegetation more backward than in any year probably since 1837.—*Burton, Derby Road*. The first ten days were fairly mild, but during the latter part of the month cold winds, chiefly from N.E., prevailed, accompanied by frequent falls of S. Mean temp. 3°·1 below, and R ·77 in. above, average.

VII. *Coston Rectory*. Very unsettled, a few very pleasant days, but the majority cold and unpleasant; wind very cold and mainly from N.E.—*Ketton Hall*. Very changeable and generally cold; remarkable for great depression of barometer from 25th to 30th, but without any wind, and no gales during the whole month. S in the middle and again on 25th, 26th, and 27th.—*Mansfield*. Cold and comfortless, with very few mild days; R ·82 in. above the average of 18 years; temp. much below the average; S on 15 days.—*Worksop, Hodsock Priory*. Very cold and dull, with a good deal of S, sleet, and cold R, and a preponderance of northerly winds. Mean temp. 4° below the average, and lower than that of any of the previous 12 Marches, except 1883. R rather more than in any March since 1877;

sunshine the least in any year since the record began in 1881 ; pressure lower than in any month since February, 1879.—*Derby, Elvaston*. Cold and unpleasant, with frequent S storms ; 20 frosty nights.

VIII. *Walton-on-the-Hill*. Very cold, with much S ; R slightly above the average ; pressure low and unsteady throughout.

IX. *Scarborough*. First ten days fine and mild, continuous gales and S storms from 11th to 19th, remainder of month fairly fine.—*Leyburn*. The most severe and stormy month on record.—*East Layton*. The first ten days were very dry, and water had to be carted in this neighbourhood. On 11th there was a heavy fall of S at night, and the storm continued all the week, traffic both on rail and road being much interfered with. The remainder of the month was marked by cold winds and showers of R and S.

X. *Barnard Castle, Whorlton*. Very cold with much S.—*Unthank Hall*. S fell frequently, which, with gales of wind, produced drifts and blocked roads.—*Uldale Rectory*. Most unpleasant and changeable, frequent S and frost, and cold N.E. and N.W. winds.

XI. *Llanfrechfa Grange*. Very stormy and unusually wet, but the water acceptable in any form.—*Llechryd, Fern Hill*. Very cold winds prevailed, which checked vegetation ; little S fell, and it never remained on the ground more than an hour or two after the sun was up.—*Douglas, Victoria Road*. Bitterly cold from first to last, with much S, which fell on ten days.

XII. *Glenlee*. Very cold and backward.—*Melrose, Abbey Gate*. A dreary wintry month with frequent gales, heavy falls of S, and low temp. R .68 in. above the average, frost on 29 nights.

XIII. *Edinburgh, Blacket Place*. Very stormy, with a large number of snowy days. The first ten days rather mild.

XVI. *Stronvar*. Very stormy, with severe frost.

XVIII. *Glenaladale*. Very fine, generally calm, with a great deal of sunshine ; temp. low ; prevailing wind E.—*Drumnadrochit*. Very wet and boisterous.

XIX. *Watten H.R.S.* There was a series of storms of wind with hard frosts and frequent falls of S, soon thawed by the sun.

XX. *Coolkelure*. Dry, except from 7th to 14th ; wind principally N. or E. ; pressure remarkably low from 25th to 30th.—*Killarney*. Scarcely any S. wind the whole month, which was, especially in the beginning, bitter with east wind ; S on the Kerry mountains all the month ; an average R.—*Derrycastle*. A month of "many weathers,"

with more than the average R. The S was the heaviest of the winter, and the adjacent hills were white through the entire month, but the S soon cleared off the plains. E. and N. winds prevailed, and the weather was very harsh.—*Nenagh, Castle Lough*. Another very cold month; frost, S, sleet, R, and bitter N. and E. winds, with a few, very few, mild days. The first month with R in excess of the average of 11 years, since January, 1887.—*Newcastle West*. Despite the large R, it was a good month for tillage and the ground was very dry at the close.—*Broadford, Hurdlestown*. Wet, cold, and severe, especially the last week, which was marked by R, S, and strong gales.—*Miltown Malbay*. The coldest and most ungenial March remembered; S or sleet on 13 days, and frost on 19. The Kerry and Cork mountains draped with S for the last ten days.

XXI. *Twynyford*. Very harsh and frosty all the month, with N. and E. winds.—*Currygrane*. The early part of the month was favourable, the R between 7th and 12th being very acceptable, as water was becoming extremely scarce; the latter half was very severe.

XXII. *Woodlawn*. Very cold throughout, with sharp N.E. winds.

XXIII. *New Barnsley*. Variable throughout; R 1·50 in. above the average of 13 years.

APRIL.

I. *Lansdowne Crescent*. The coldest April since 1879, mean temp. 44°·4. The first ten days had a "mean" temp. of only 37°·6. Frost on ten nights.—*Muswell Hill*. R about 16 per cent. above the average of 16 years.

II. *Abinger Hall*. Cold and wintry, with N.E. winds.—*Wallington*. Cold and dreary; all vegetation in a most backward state. R about the average.—*Keston Tower*. Extremely cold till 12th, with frost daily; the remainder of the month generally mild and seasonable.

III. *Berkhampstead*. Singularly cold, humid and sunless; very nearly all the R fell during the nine days ending 23rd.—*Banbury, Bloxham*. Very cold and gloomy, with only about four really fine days and an extraordinary absence of sunshine.

IV. *Ipswich, Bishop's Hill*. R slightly less than the average, and a great prevalence of cold N. and N.E. winds.—*Weybread*. A cold, backward month. A warmer spell from 8th to 21st, and then bitterly cold till 27th. S on four days; many overcast days; easterly winds on 16 days.—*Diss*. Cold and wintry till the 10th, with

frequent S, and sunny intervals. The latter half of the month was fair April weather, and the last three days were delightful.

V. *Bishop's Cannings*. Cold, with 20 rainy days, though the total R was little above the average.—*Babbacombe*. Cold, rather dry, cloudy and showery, with rather low mean pressure. The mean temp. was, with one exception, the lowest observed in April during 12 years, and the number of days on which S fell (5) was the greatest in the same period. S drifts lay on Dartmoor from March 24th to April 11th.—*Pilton*. Windy, wet and cold.

VI. *Further Barton*. Very cold and backward, with cloudy skies ; R in small quantities.—*Ross, The Graig*. The first ten days were bitterly cold with two or three light S showers and almost constant polar wind. From 11th to 23rd it was wet, with average temp. to the 19th, then cold to the end.—*Burton, Derby Road*. From 1st to 12th very cold, then warmer till the 19th, when the wind changed to N.E., bringing bitterly cold weather with it ; the last four days were, however, warm. Mean temp. $2^{\circ}9$, and R $\cdot 49$ in., below average.—*Hoar Cross*. Very changeable ; at times bright and warm, at other times very cold.—*Cheadle, The Heath House*. Very cold ; vegetation very backward, trees bearing the aspect of winter, hedges budding towards the close.

VII. *Coston*. Very few fine days ; N. and N.E. winds very prevalent ; temp. and R about the average.—*Ketton Hall*. Very changeable, only three "bright" days, and mostly very cold ; wind variable, N.E. from 21st to 26th ; S on four days, T on three days.—*Horncastle, Bucknall*. Very cold, with R above the average, and all vegetation very backward.—*Mansfield*. With the exception of about a week of genial weather, April was cold and wet, with little sunshine and much N.E. wind ; R $\cdot 59$ in. above the average of 18 years.—*Worksop, Hodsock Priory*. Cold, very dull, and rather windy, with average R and a preponderance of N.E. and N.W. winds ; mean temp. 3° below the average ; sunshine much less than in any year since the record began in 1881.—*Derby, Elvaston*. Variable, frequently cold and windy, retarding vegetation ; nine frosty nights.

VIII. *Walton-on-the-Hill*. Cold throughout, with R more than $\cdot 50$ in. below the average.

X. *Uldale*. The weather, though somewhat cold, was not unfavourable for agricultural operations, which were well forward at the close.—*Shap*. Cold, with N. and N.E. winds.

XI. *Douglas, Victoria Road*. Bitterly cold, with strong polar winds and gales towards the end.

XII. *Melrose, Abbey Gate.* Extremely cold, the Eildon hills white with S on 23rd and 24th.

XVI. *Coupar Angus.* Temp. and R both below the average; frost on 14 nights.—*Stronvar.* Weather changeable, but cold as a rule; prevailing winds N. and N.E.

XVIII. *Glenaladale.* Fine and seasonable; S on hill tops on 11th and 29th.—*Drumnadrochit.* Strong E. winds and low temp.

XIX. *Watten H.R.S.* Wet, cold, and very ungenial, with little sunshine and continuous light R.

XX. *Coolkelure.* Remarkable for the great prevalence of E. and N.E. winds and the absence of April-like weather.—*Killarney.* Dry, with drying E. winds; gardens everywhere backward.—*Derrycastle.* Dry and harsh, with nightly frost till 6th; showery from 8th to 22nd and from 27th to the close; warm and genial from 7th to 17th, but from the 18th to the end cold N.W., N., and N.E. winds prevailed; R .67 in. below the average of nine years.—*Hurdlestown.* Though the number of days with R was large, the falls were invariably small and did not add at all to the streams and springs, which were very low at the close.—*Miltown Malbay.* Cold and ungenial; cold and frosty till 7th, then misty and foggy for a week; from 19th to 26th boisterous winds from N. and E., with some frost; the last four days cold and rainy.

XXI. *Currygrane.* E. winds were very prevalent, but on the whole the weather was not unfavourable for farming.

XXII. *Lawderdale.* Seasonable and mild.

XXIII. *Seaforde.* Very cold, with E. and N.E. winds, except the last few days.—*New Barnsley.* Fine, but cold, till 9th, then showery; very cold from 20th to 26th.

MAY.

I. *Lansdowne Crescent.* Very dry, R on six days only; there were two periods without R, viz., from 4th to 16th and from 18th to 29th.—*Muswell Hill.* Dry, R exactly four-sevenths of the average of 16 years.—*Finchley, Etchingham Park.* Very dry, both as regards total fall and the number of wet days.

II. *Abinger Hall.* Very bright and genial throughout.—*Wallington.* The month, though warm, was so dry that vegetation was retarded, the R being about half the average.—*Hythe.* Very unsettled and windy, with several fine days.—*Keston Tower.* Very pleasant; fine

and dry, with plenty of sunshine and average temp.—*Lewes, Iford*. Genial, with slight thunderstorms on 19th and 21st.

III. *Berkhampstead*. R fell on only seven days ; atmosphere very dry, the sun shining on an average for $6\frac{1}{2}$ hours a day.—*Banbury, Bloxham*. R slight and temp. low. There were 16 days on which the weather was fine and pleasant, but at the end of the month the wind was cold and harsh.—*Sedgebrook, Pitsford*. Dry, fine and pleasant.

IV. *Sheering*. R $\cdot 84$ in. less than, or little more than half of, the average.—*Ipswich, Bishop's Hill*. R an inch less than, or just one half, the average ; many cold nights and several frosts.—*Weybread*. Dry and moderately warm, much sunshine, and winds generally very light ; from 4th to 15th no R fell, but on 16th there was a light, steady, warm R from 1 to 7 p.m., doing a world of good ; easterly winds on 16 days.—*Diss*. The first three days of the month were rather rough, with gales from S. and S.W., and some heavy showers. There were heavy gales, too, from S. and S.W. on 17th and 31st ; otherwise the weather was bright and enjoyable, and though the winds were at times cold, there were no night frosts sufficiently sharp to injure potatoes, &c., except in some exposed gardens. The R was very small, $\cdot 80$ in. on only six days.

V. *Bishop's Cannings*. R a trifle less than half the average of ten years. After nice R on 16th and 17th and two growing days, there occurred a succession of E. winds and white frosts.—*Babbacombe*. Rather cold but fine. The ninth cold month in succession ; the number of wet days (8) was the smallest in any May during 12 years, except 1880, when the number was the same ; gales on five days.

VI. *Further Barton*. Fine, with many warm, sunny days, causing rapid growth in vegetation.—*Ross, The Graig*. Very fine, with much bright and clear weather and no frost at 4 ft. ; not much E. wind, and vegetation progressing rapidly ; trees not leafing till the close of the month.—*Burton, Derby Road*. Warm and dry ; two periods of 12 and of 9 days respectively without R ; frost on 12th, the last of the winter ; mean temp. $1^{\circ}3$ above, and R $1\cdot77$ in. below, average ; driest May during 13 years.—*Cheadle, The Heath House*. Dry, with many sudden changes from heat to cold ; vegetation made wonderful progress.

VII. *Coston*. On the whole a pleasant month, though some days were very cold ; the change of temp. within 24 hours was sometimes very great.—*Ketton Hall*. Very dry, but vegetation not suffering much ; wind very changeable, but easterly on 15 days.—*Bucknall*.

Cold and dry ; heat set in on 18th, but it turned cold again on 20th, and remained so to the close.—*Southwell*. Very dry and rather warm. The driest May since 1884 ; no R fell from the 2nd to 16th, or from 18th to 29th.—*Mansfield*. May commenced and ended with high winds and cold showers, but on the whole was a beautiful month, though with sudden changes of temp. ; R less than half the average.—*Worksop, Hodsock Priory*. Fine, dry, and rather windy, with warm days and cold nights ; the driest May since 1876, and the brightest since 1882 ; mean temp. slightly above the average ; vegetation late and R wanted.—*Derby, Elvaston*. Dry, with much wind, frequently cold and changeable, yet very warm on some days ; one frosty night.

VIII. *Walton-on-the-Hill*. R only half the average.

X. *Whorlton*. Very dry, with a few hot days ; very cold N.E. wind in the latter part.—*Shap, Copy Hill*. Commenced with strong winds and heavy showers, followed by a week or so of cold dry weather with frost at night ; the second half of the month fine and seasonable.

XI. *Castle Malgwyn*. The first half of the month cool with occasional showers, the latter part very dry and hot, except for a fall of .51 in. on 29th ; water was already scarce at the close.—*Douglas, Victoria Road*. Cold and ungenial, except from 20th to 27th, which was a week of brilliant and even warm weather ; the first four days were stormy, S.E. and S.W. gales, with R, H, and sleet ; from 5th to 18th it was fine, but with extremely cold N. and N.W. winds ; the last four days were also stormy, S.E. gales, and heavy R.

XII. *Melrose, Abbey Gate*. R 1.59 in. below, or less than half, the average ; S.W. or W. gales on 2nd, 3rd, and 31st ; frost on 14 nights.

XIII. *Edinburgh, Blacket Place*. Fine and warm, no frosts ; the max. temp. on 19th (76°.8) was quite exceptional, and was not again reached in the dull and cheerless summer which followed.

XVI. *Stronvar*. Very changeable, with temp. low on the whole, and R above the average.

XVIII. *Glenaladale*. With the exception of a spell of beautiful weather from 20th to 28th, a cold and inclement month ; very stormy from 1st to 4th.

XX. *Derrycastle*. Very fine ; alternate spells of showery weather and of pleasant sunshine ; exceedingly favourable to vegetation ; R slightly below the average.—*Newcastle West*. A splendid month for pasture and meadow lands, the alternations of R and heat secured a

splendid growth ; gales on 1st, 2nd, and 29th.—*Hurdlestown*. A very favourable month, plenty of R, and warmth to make the crops grow ; westerly gales at the beginning and end of the month.—*Miltown Malbay*. The first nine days were wet and windy, followed by ten days with gradually rising temp., the last five with much R ; this was succeeded by eight days of cloudless warm weather, all combining to give an unexampled spurt to vegetation. The last four days were cold and rainy, with a stiff W. gale on 29th and 30th.

XXI. *Currygrane*. Favourable on the whole for farming operations, though considerable anxiety was felt as to the water supply until the heavy fall of R on the 29th.

JUNE.

I. *Lansdowne Crescent*. Very wet after the 8th, with frequent TSS. Temp. mostly high till the 12th, and low afterwards.—*Muswell Hill*. R 19 per cent. in excess of the average of 18 years, and being distributed over 18 days, it gave the month a very wet character.—*Finchley, Etchingham Park*. Wet, with R on 19 days, but more than half the total in TSS on 14th and 26th, the fall on the latter day (1·14 in.) being the largest since May, 1886 ; after the 11th there were only four rainless days.

II. *Abinger Hall*. Very stormy and changeable, with some severe TSS.—*Wallington*. Cool and wet, with a great absence of sun, and comparatively low temp. ; R above the average ; amount of cloud, 7·7 ; percentage of sunlight, 31·7 ; TSS on 25th and 26th.—*Hythe*. Unseasonable, dull, and cold.—*Keston Tower*. A cold June on the whole, with much R, which, in the last half, interfered greatly with the haymaking.—*Emsworth, Redlands*. Wet, rough weather prevailed, with cold nights, the want of sun being greatly felt.

III. *Broxbourne*. N.E. winds and wintry weather prevailed nearly all the month, the 25th and 26th being the only really warm days.—*Berkhampstead*. Frequent TSS ; nearly an inch of R fell during a TS on 26th ; daily duration of sunshine only 3½ hours.—*Banbury, Bloxham*. The first part of the month was mostly fine and pleasant ; the latter part, with some exceptions, cold and gloomy.—*Sedgebrook, Pitsford*. The first part of the month was fine and pleasant, the middle colder, and the end warm again.

IV. *Sheering*. R ·84 in. above the average of 20 years.—*Ipswich, Bishop's Hill*. Great variations of temp., and many cold days and

nights, especially towards the end ; much T and L ; R .62 in. less than the average.—*Weybread*. Much bright sunshine, but generally accompanied by very cold winds ; the crops were looking well, but the hay was decidedly short ; easterly winds on 17 days.—*Diss*. There was much bright weather with some hot days, but on the 19th the max. was only 54°, and it was sunless, chilly, and overcast from 16th to 20th and on 29th and 30th, fires being general on the latter date.

V. *Bishop's Cannings*. R 1.78 in. above the average of ten years ; no hay carried during the month.—*Babbacombe*. Cold, wet, damp, cloudy, and unsettled ; the tenth cold month in succession, and the coldest June since 1882.

VI. *Further Barton*. Changeable, R often accompanied by T and heat.—*Ross, The Graig*. Day temp. very low ; a good deal of T, but only one TS.—*Burton, Derby Road*. Weather very varied, heat alternating with cold, and wet with dryness ; the month on the whole was cold and dry ; mean temp. 1°.5, and R 1.07 in., below average.

VII. *Coston Rectory*. Cold and cheerless ; a few hot days, soon followed by a return of cold days and nights ; frequent R and T.—*Ketton Hall*. Very changeable, with mostly low temp., except on 25th and 26th, which were very warm and bright ; T on six days.—*Bucknall*. Very cold and dry, with a preponderance of polar winds.—*Southwell*. R above the average ; temp. 2°0 below the mean. The temp. in shade rose above 70° on only four days.—*Mansfield*. Pleasant, cool, and dry at the commencement ; welcome showers from 5th to 9th ; cool and cloudy from 10th to 20th ; heavy R and T on 21st and 22nd, then sunny and warm to the 27th ; R .15 in. below the average of 18 years.—*Worksope, Hodsock Priory*. Very dull, with frequent showers, but a small total fall ; very low day temp., but not cold nights, and a large proportion of N. and N.E. winds ; greatly resembled June, 1886, but a great contrast to June, 1887, when the mean min. was the same, but the mean max. 8° higher ; sunshine less than in any year since the record began in 1881.—*Derby, Elvaston*. Windy, often cold and unpleasant ; much electric disturbance and cloud.

IX. *Scarborough*. Mostly cold and ungenial, with prevailing N. winds and much cold fog.—*Leyburn*. Very wet, cold, and dull ; vegetation very backward.

X. *Whorlton*. Cold ; frequent T with heavy R.—*Uldale Rectory*. The weather of the month was almost all that could be desired, for

though E. winds prevailed, the temp. was warm and agreeable.—*Shap.* Fine, very hot at times.

XI. *Douglas, Victoria Road.* The first half of the month was very wet, wintry, and windy; the weather improved during the latter half, the 25th and 26th being warm and summer-like.

XII. *Melrose.* Exceptionally cold and unseasonable, N.E. winds preponderating; R .95 in. above the average.

XIII. *Edinburgh, Blacket Place.* Very cold; in the past 25 Junes, 1887 was the hottest and 1888 the coldest.

XVI. *Coupar Angus.* The first half of the month was cold and wet; the second half dry, with cold nights and sunny days. R much above the average.—*Stronvar.* The first half was very cold, but in the latter half the day temp. was high, though the nights were still cold; S on the hill tops on 2nd and 3rd.

XVIII. *Glenaladale.* The first fortnight was cold, inclement, and wet, with S on the hills; in the remainder there was hot sun, with cold E. wind.—*Drumnadrochit.* Remarkable for the unusual continuance of E. winds, for the late appearance of S on the hill tops, and for the severity of morning frosts.

XIX. *Watten H.R.S.* The first portion was wet and cold; the middle dry and fine; the latter part cold and very dry.

XX. *Derrycastle.* Constant and heavy R for the first 14 days, but from the 15th to the end generally dry, with many days of bright warm sunshine; R 2.54 in. above the average, and the heaviest in June since 1879.—*Miltown Malbay.* The first half very rainy, but not cold, except a few days when H showers fell; the second half beautifully fine and sultry, breaking up near the close, with distant T.

XXIII. *Lurgan, Belle Vue.* Four times the average amount of R, and the total fall for the three days, 11th, 27th, and 28th, equals 3.17 in.—*New Barnsley.* The first half dull and rainy, but on 16th the wind changed to E., remaining in that quarter, with fine hot weather, till 26th, on which day a TS occurred, and the weather of the remainder of the month was broken.

JULY.

I. *Lansdowne Crescent.* Remarkably cold and wet, R 5.27 in., the greatest monthly fall since October, 1882; mean temp. 58°.3; the coldest July since 1860.—*London, Camden Road.* R fell on 27 days, the greatest number in any month during 13 years.—*Finchley,*

Etchingham Park. Extremely wet, both as regards the amount of R and the number of wet days; no two consecutive days were without R.

II. *Godalming, Witley.* The rainiest July, with the lowest temp., within memory.—*Dorking, Abinger Hall.* A month of continuous R, which hindered all out-door operations to an extraordinary extent, much hay being spoilt.—*Wallington.* Extremely wet and cold, with very little sun; R 2·50 in. above the average of six years. Five TSS. Sunlight only 26 per cent. of the possible duration, and less than half the average.—*Beddington, Riverside.* R almost phenomenal, for besides the downpour of the 30th, there was a fall of 1·12 in. on the 6th.—*Tenterden.* The wettest July recorded; wetter even than July, 1860.—*Hythe.* Very cool, showery and unseasonable.—*Tunbridge Wells, Camden Park.* More remarkable for the number of wet days (25) than for the amount of R.—*Keston Tower.* The wettest month since October, 1882, when 6·62 in. of R fell.—*Beckenham, Foxgrove.* The wettest month since August, 1878.—*Lewes, Iford.* The wettest month of the year, and the wettest July remembered; low temperature, and no sunshine; TSS and drenching R.—*Emsworth.* Wet, cold and rough; hay utterly ruined. The largest R in any month since records commenced in 1884.—*Aldershot.* Very wet, more than ·50 in. of R fell on five days.

III. *Berkhampstead.* Extremely cold, wet and dreary; not a single hot day, and only five which were perfectly fine; mean daily duration of sunshine only two hours forty minutes.—*Great Marlow.* The wettest July since 1880.—*Pyrton Manor.* A remarkable month; mean amount of cloud 8·4; R on 26 days; 12 sunless days.—*Banbury, Bloxham.* Most inclement; temp. very low, the sky gloomy, and little sunshine; only six days without R, the streams much swollen, and the meadows flooded between the 17th and 21st.—*Sedgebrook, Pitsford.* Very wet and cold.

IV. *Harlow, Sheering.* R 1·51 in. above the average of 20 years.—*Sudbury.* Wet and unseasonable, with a good deal of T and heavy R.—*Ipswich, Bishop's Hill.* R just double the average; very cold and dull, with much T and little sunshine.—*Weybread.* Miserable; nothing but R and absence of sun. The crops looked as if they could not ripen. The root crop was stationary by reason of the cold, and immoderate R; potatoes much blighted; 12 days completely overcast, and several with seven to eight of cloud; easterly winds on 13 days.—*Diss.* Very wet and cold, with frequent TSS; the R

greatly exceeded the average, and occasioned great delay and loss in the hay harvest, which, indeed, was hardly begun by the end of the month, the cut grass lying spoiled upon the ground.—*Geldeston*. R the greatest in July in 23 years.—*Bergh Apton*. The wettest July since 1855.

V. *Bishop's Cannings*. A disastrous month for all crops ; R nearly twice the average.—*Torquay, Babbacombe*. Very wet, cold, damp, foggy and gloomy, with low pressure and unprecedented electrical disturbance. The eleventh cold month since August, 1887 ; R more than twice the average, and the most in any month since October, 1880, and in any July for 24 years ; mean temp. the lowest in July for 11 years, except 1879, when it was the same ; the number of days on which TS or T occurred (7) was the greatest in any month, and the amount of cloud the greatest in any summer month.—*Teignmouth, Woodway*. R the heaviest in July since 1871, and 4·34 in. above the average of nine years.—*Brampford Speke*. Remarkably wet and chilly.—*Bodmin, Fore Street*. Very wet, R 10·50 in. on 26 days. The wettest month (except January, 1875, and January, 1872, the only other months with more than ten inches) during 27 years.—*Stowell Rectory*. Cold and wet, R 4·45 in. above, and mean temp. 3°·3 below, the average of five years.—*Bincombe*. Cold, wet and stormy.

VI. *Clifton*. The wettest July during 36 years.—*Further Barton*. Wet and gloomy ; only five days without R ; no TSS.—*Ross*. Remarkable for its great coldness and want of sunshine during the day ; for great cloudiness and electric disturbance, though no severe TS occurred close ; for the very low mean and min. temp. of the 11th, the coldest day recorded in July, and for the wretched hay-making season, the month having more the character of November than July, and being apparently worse for both cold and wet than the corresponding month in 1860, '79, or '80.—*Burton, Derby Road*. Very wet and very cold almost throughout ; four TSS ; mean temp. 4°·9 below, and R 3·25 in. above, the average of 12 years. It was the coldest July during 12 years, and the wettest save July, 1880.—*Burton, Hoar Cross*. Very dull and cold ; T on eight days.—*Warwick, Barford Rectory*. The R of July was the largest recorded here in one month, but there was no excessive amount on any one day.—*Coundon*. Total R 6·66 in. ; exceeded in only one month during 21 years, viz., October, 1875, when 7·08 in. fell.

VII. *Coston*. Very wet and dull, with very little sunshine, and consequently everything very backward ; hay much spoilt.—*Ketton*

Hall. Very wet and dull, and no real summer weather ; wind and atmospheric pressure very variable and temp. low.—*Horncastle, Bucknall.* Exceedingly cold and wet.—*Southwell.* The coldest, wettest, and most sunless July in recent years ; hay-making entirely at a standstill owing to continuous unsettled weather.—*Mansfield.* Wet, sunless and cold ; R twice the average of 18 years.—*Worksop, Hodsock Priory.* Very cold, wet and dull ; mean temp. nearly 5° below the average, and lower than in any of the previous 12 years ; the days were especially cold, and the mean max. was nearly $1^{\circ}3$ lower than in 1888 ; The R was greater than in any of the previous 12 years, except 1880 ; it was due to a number of moderate falls, and not to any specially heavy ones ; sunshine much less than in any year since the record began in 1881.—*Derby, Elvaston.* Extremely stormy, cold and ungenial, with no summer weather.

VIII. *Northwich, Winnington.* R the greatest in any month since the record commenced in 1869.—*Hill Cliffe [Warrington].* R unusually heavy, being the greatest in any month since 1882.—*Garston, Grassendale Park.* R the greatest registered in any month during ten years.—*Walton-on-the-Hill.* The R was 1.25 in. above the average, and helped to make up the previous deficiency ; the month was very cold throughout.—*Eccleston, Elswick Lodge.* The wettest July in 17 years, and with two exceptions the wettest month.

IX. *Halifax, Bents Norland.* Several days were colder at midday than days in December.—*York, Cherry Hill.* R 3.53 in. above the average of 39 years.—*Scarborough.* Very cold and wet, with much dark sunless weather.—*Leyburn.* A colder, wetter, and more unseasonable month is not within the recollection of the oldest inhabitant.—*East Layton.* One of the wettest and coldest Julys for many years.

X. *Sunderland, West Hendon House.* R 6.54 in., the heaviest, with one exception, in any month of a record of more than 28 years.—*Uldale.* Cold and wet ; R on 20 days, and the total amount of R large.—*Cross Fell, Kirkland.* The wettest July remembered, though a greater quantity of R fell in September, 1887.

XI. *Llanfrechfa.* R 7.62 in., a fall which has been exceeded only once in July, in 23 years, viz., in 1875, when 8.46 in. fell.—*Douglas, Victoria Road.* Very wet and cold ; R in excess of that previously recorded in any summer month.

XII. *Melrose, Abbey Gate.* Another cold and wet month ; mean temp. $2^{\circ}6$ below the average ; frost in shade on five nights.

XIII. *Edinburgh, Blacket Place.* Very cold and wet.

XVI. *Dollar.* Cold, sunless, and wet throughout.—*Coupar Angus.* Very changeable ; the coldest July for eight years ; much T.—*Stronvar.* Very wet and cold ; crops a month late.

XVIII. *Glenaladale.* A fine growing month ; very calm, with much easterly wind.—*Drumnadrochit.* Remarkably cold, with N. or E. wind almost throughout.

XIX. *Watten H.R.S.* On the whole moderately favourable, though generally cold and often sunless.

XX. *Killarney.* Rather cold and wet.—*Tipperary, Henry Street.* A wet month.—*Derrycastle.* Very cold and wet for the first week ; fine from 6th to 14th ; but constantly wet from the 15th to the close. R slightly below the average, but number of wet days large.—*Hurdlestown.* Very wet, hay and corn much injured by R, but green crops doing well.—*Miltown Malbay.* Cool and rather wet ; bad for haymaking, crops very backward, and potato disease showing.

XXI. *Edgworthstown, Currygrane.* Terribly wet and very cold.—*Louth, Ravensdale School.* The wettest July since 1879 ; T on three days.

XXIII. *Edward Street Station [Newry].* Very wet, causing much damage to crops.—*New Barnsley.* Very wet, the only fine weather being from 4th to 7th.

AUGUST.

I. *Lansdowne Crescent.* Very fine after the TS of 1st, until 24th, wet during the remainder ; R 2·69 in., of which 1·65 in. fell in the storms of the 1st and 28th.—*Muswell Hill.* The wettest August since 1881, the R being 52 per cent. above the average of 16 years ; no R fell from 7th to 19th.

II. *Abinger Hall.* Not much sunshine or settled weather ; crops about three weeks late.—*Wallington.* Another wet month ; R ·88 in. above average ; temp. 1°·6 below the average.—*Hythe.* Dull, cold and unfavourable.—*Keston Tower.* Cold and unseasonable, with R and high wind.

III. *Banbury, Bloxham.* Mostly fair till the 20th, and the 9th and 10th hot, after the 20th mostly cold and gloomy, with frequent and sometimes heavy R, which much retarded harvest.—*Northampton.* R from January 1st to the end of August, just the average ; westerly winds prevalent ; hay and corn very backward.

IV. *Harlow, Sheering.* The R of the month was less than that of August, 1881, but the fall of July and August together was 1·08 in. more than that of the corresponding months of 1881.—*Ipswich, Bishop's Hill.* Weather very unsettled; temp. low, and frequent short TSS; R ·27 in. below the average; harvest very late.—*Weybread.* From 5th to 16th no R, otherwise a cold, wet month; gale with storms of R on 5th. Harvest generally commenced on 27th—a very late one; easterly winds on 10 days.—*Diss.* A cold and wet month; from 7th to 15th no R fell, but from 20th to 31st there was only one dry day. Harvest much delayed; much wheat cut, but very little carried by the end of the month.

V. *Bishop's Cannings.* Fine till 18th, and hot from 7th to 11th; wet from 19th to the close. Harvest begun on 27th.—*Torquay, Babbacombe.* Cold, damp, wet and unsettled, with rather high pressure and low temp., the shade min. being the lowest in August since 1877. It was the twelfth consecutive cold month. Heavy TS on 2nd, L on 9th, T on 1st; fog on five days.—*Teignmouth, Woodway.* R ·51 in. below the average of 17 years, but number of wet days four above the average.

VI. *Cirencester, Further Barton.* After the 6th, dry weather set in, and a few hot days gave hopes of good weather for harvest, but N.E. wind brought low temp., and the last fortnight was showery and changeable.—*Ross, The Graig.* The month was fine at the beginning with a few hot days, but want of sunshine followed again, and at the close of the month the corn harvest had scarcely begun. Total R somewhat below the average.

VII. *Coston Rectory.* R below the average, but the changeableness of the weather and the absence of heat made the crops very backward.—*Ketton Hall.* More sun and less R than in July, but changeable with low temp.; bad for early harvest.—*Bucknall.* Another very cold month, with R almost daily in the latter half.—*Mansfield.* August opened and closed with bright sunny weather, but was generally cool and sunless; R slightly, and temp. much, below average. Harvest the latest since 1879.—*Worksop, Hodsock Priory.* Cold and rather dull, but not wet; but for a heavy fall on 28th, it would have been very dry. Mean temp. 2°·5 below the average, and lower than in 10 out of the previous 12 years; sunshine less than in five out of the previous seven years.—*Derby, Elvaston.* Variable, tolerably fair until the 20th, rather ungenial on the whole; cool and windy.

VIII. *Walton-on-the-Hill*. Dull and unsettled throughout; R slightly below the average.—*Esthwaite Lodge*. R an inch below the average; haymaking has been going on for two months and is far from complete.

IX. *York, Cherry Hill*. R .75 in. below the average of 39 years.—*East Layton*. Very changeable and uncertain, with a fine day now and again.

X. *Uldale Rectory*. Very cloudy, no glimpse of sunshine for days together, and though the R was not excessive, it fell on 17 days, but so far the crops do not appear to have suffered.

XI. *Castle Malgwyn*. Cold, sunless, and very wet.—*Cerrigy druidion*. Wet, with very little sun and much wind on the 13th and after the 23rd; the latest harvest ever known.—*Douglas, Victoria Road*. R below the average, but the month was very cold, sunless, and gloomy throughout, unredeemed by one really warm day.

XII. *Melrose, Abbey Gate*. Singularly dull and cheerless; crops maturing very slowly; R .26 in. above average, temp. 3°·8 below average.

XVI. *Coupar Angus*. R slightly below the average, but number of wet days in excess.—*Stronvar*. Cold and wet; crops of all kinds very late and poor.

XVIII. *Glenaladale*. A very wet month.

XIX. *Watten H.R.S.* Cloudy, foggy, wet, and sometimes cold.

XX. *Coolkelure*. Unusually wet, with great absence of sun and warmth.—*Killarney*. The first half was genial, in the second half R fell every day; saving of hay greatly impeded.—*Derrycastle*. Though the R was 1·23 in. below the average, and the number of wet days only one in excess, there was little continuous drying, except from 13th to 18th; but, on the other hand, no continuous heavy R, and no storms, so corn crops suffered no serious damage.—*Miltown Malbay*. The first half of the month was fair, the second half very wet and cool.

XXII. *Galway*. Very changeable and rough.—*Clifden, Kylemore*. Wet and stormy throughout.

SEPTEMBER.

I. *Lansdowne Crescent*. Dry, no R between the 10th and 23rd; temp. low, except from 13th to 22nd.—*Muswell Hill*. The driest September since 1878, the total exceeding the fall of that month by

·01 in. only, and that of September, 1877, by ·11 in., the last mentioned being the driest September since the record commenced in 1872.—*Finchley, Etchingham Park*. Very dry, the total R being 1·05 in. only ; though R fell on 14 days, the amounts generally were very small. A dry period of 13 consecutive days occurred from 10th to 22nd.

II. *Abinger Hall*. A most lovely month, especially for farmers, who have been enabled to harvest their corn in very fair condition.—*Wallington*. Very fine ; R 1·93 in. below the average of six years ; sunshine 42 per cent. of the possible duration.—*Hythe*. Remarkably fine.—*Keston Tower*. Very fine, with little R ; temp. very equable ; potatoe crop a failure, apples and pears scanty.—*Littlehampton*. The finest month since May ; vegetation surprising ; potatoe haulm 6 ft. high, other vegetation in proportion.—*Emsworth*. Warm and dry ; from 21st to 24th unusually hot ; heavy dews ; corn harvest favourably secured, second crops of hay well saved.

III. *Broxbourne*. Cold winds all the month ; temp. considerably below the average.—*Berkhampstead*. The driest September since 1865.—*Banbury, Bloxham*. Mostly fine and pleasant, particularly from 14th to 22nd ; harvest, though late, nearly finished by the close, in excellent order ; 23rd, 24th, and 28th remarkable for dense fogs.

IV. *Harlow Sheering*. R 1·73 in. below, or little more than one third of, the average.—*Ipswich*. R ·39 in. below the average ; most of the R fell on 7th and 9th, during the two sharpest thunderstorms of the year ; no R fell from 10th to 28th, then only slight showers.—*Weybread*. Very cold and wet for the first ten days, then a spell of dry, bright, genial weather, so that the crops were harvested in far better order than was anticipated, and the yield was good, though the quality was only moderate ; roots and grass abundant, probably the former were seldom a heavier crop ; easterly winds on 19 days.—*Diss*. A fine first was succeeded by nine days of very wet, cold, unsettled weather, then followed four days of warmth and splendid sunshine, which saved and nearly completed our harvest. The rest of the month was fair, with the exception of the 24th, when R fell in the afternoon, with much distant T and L both to S. and N.W.

V. *Bishop's Cannings*. Beautiful weather from 10th to 27th, by which time the greater part of the corn was carried.—*Babbacombe*. Mean pressure, and relative humidity (88), were the highest, and the total R (·63 in.), max. in shade, and mean amount of cloud were the

lowest, in 13 Septembers ; it was the thirteenth cold month in succession. It was generally showery from 2nd to 9th and from 24th to 30th, but no R fell in the 14 days, 10th to 23rd. No gales ; TSS on night of 24th, L on 9th and 26th.—*Stowell Rectory*. Fine and dry, R about 2 in. below the average.—*Bincombe*. Very fine and warm, with much sunshine.

VI. *Clifton, South Parade*. The driest September since 1865.—*Further Barton*. Very fine, the latter half often foggy ; distant T on 7th.—*Ross, The Graig*. The driest September, except 1865, since 1851. Harvest began towards the middle of the month, about six weeks late, and was not finished at the close ; from 11th to 20th the weather was very bright and clear for the season, but there were no hot days.—*Burton, Derby Road*. On the whole fine and warm ; there was a frost on 26th, the first of the winter ; R 1·56 in. below the average, the driest September during 13 years.—*Hoar Cross*. A very bright month and hot in the middle ; thunder on 6th, fog on five days.

VII. *Coston Rectory*. Fine, especially from 11th to 27th, except the 24th and 25th ; great progress made with the harvest, though hindered by heavy dews.—*Ketton Hall*. The finest month of the year ; beautiful weather from 11th to 23rd, wind and temp. variable all through ; harvest almost finished at the end of the month.—*Horncastle, Bucknall*. Cold, with a great preponderance of polar winds ; northerly gale on 30th, with very low temp. for the season.—*Southwell*. Dry and rather cold ; very little R from 5th to 24th, during which period much corn was secured, especially on the forward land of the Trent valley, but at the end of the month fully half the harvest was still out on the higher and heavier districts.—*Mansfield*. Dry, with much sunshine, but many cold foggy nights and several foggy days ; R 2·16 in. below the average of 18 years, and the smallest fall recorded in September ; much corn uncut at the close.—*Worksop, Hodsock Priory*. Anti-cyclonic conditions prevailed throughout, with fine, dry, cold, and very calm weather, and much mist and fog ; mean temp. 2°·5 below the average, R less than in any of the previous 12 years, except 1884 ; harvest nearly finished at the end of the month ; though there was little R, the still, misty weather and heavy dews prevented the work from being pushed on rapidly.—*Derby, Elvaston*. Fine and pleasant, not much wind ; very favourable for harvest work.

VIII. *Walton-on-the-Hill*. Cold throughout, with R less than one-third of the average.

IX. *York, Cherry Hill*. R .88 in. below the average of 39 years.—*Scarborough*. The month commenced with cold weather, but it became fine on the 11th, and with the exception of frequent fog, continued so to the end, though with low temp.—*East Layton*. By far the finest month of the year ; not a heavy rainfall, and an average amount of sunshine. Harvest three weeks late.

X. *Uldale*. Great improvement this month in temp. and R ; fog on 22nd and three following days, fogs are of very rare occurrence here. On the whole, very favourable for harvest.—*Shap, Copy Hill*. The fine weather enabled the farmers to gather in an abundant crop of hay, in good condition, about the middle of the month. Barley harvest began on the 18th. Some fields of corn were quite green nearly to the close, but harvest was progressing fast.

XI. *Castle Malgwyn*. The driest month of the year so far. The fine, dry weather was most acceptable after the heavy rains of the preceding months, and enabled the crops to be gathered in.—*Nantgwillt*. By far the driest September for 20 years.—*Douglas, Victoria Road*. Extremely fine and dry, but very cold ; total R probably the least ever recorded here, and upwards of 3.50 in. below the average of ten years ; temp. below the average throughout, the deficiency for the last ten days being nearly 4°. Harvest very late.

XII. *Melrose*. R 2.60 in. below the average ; mean temp. 2°.6 below average. Harvest commenced on 10th, three weeks later than usual.

XIII. *Edinburgh, Blacket Place*. The finest month of the year, saving the crops from ruin ; very dry, R only .59 in.

XVI. *Dollar*. Fine and dry ; by far the best month of 1888.—*Coupar Angus*. R extremely small (.31 in.) ; the month characterized by sun all day and fog at night.—*Stronvar*. Weather better than that of the summer ; crops ripened wonderfully.

XVIII. *Drumnadrochit*. The pleasantest month of the season ; from 7th to 28th especially brilliant ; sunshine and clear atmosphere.

XIX. *Watten H.R.S.* A very fine, mild, calm month, yet frost occurred on several nights.

XX. *Coolkelure*. Very fine, harvest and late hay being well saved.—*Killarney*. From the 6th onwards splendid harvest weather ; calm with “dust haze” and 18 days of drought, the longest period since June, 1887, when 23 days passed without R. Hay cheap.—*Waterford, Newtown*. Remarkably dry, nearly all the R falling on one day.—*Derrycastle*. A splendid harvest month, and the driest September

since the record commenced in 1879 ; rough and showery for the first six days, but from 7th to 26th splendid ; frequent fog at night after the 17th.—*Broadford, Hurdlestown*. Remarkably fine, with very small R ; water very low ; Doon lake lower than at any time during 1887.—*Miltown Malbay*. With the exception of the first six days, which were wet, the month was the finest September in a couple of decades, particularly for all agricultural purposes.

XXI. *Louth, Ravensdale*. The driest September for many years ; very favourable for farming operations.—*Currygrane*. Although wet at the commencement of the month, the three weeks of almost continuous fine weather proved of inestimable advantage to farmers.

XXII. *Lawderdale*. Dry, cold and bleak, but favourable for harvest.

XXIII. *New Barnsley*. Showery till 6th, thence to 27th very fine, with the exception of slight showers on 14th and 15th.

OCTOBER.

I. *Lansdowne Crescent*. Remarkably cold until the 25th, especially the first eight days, the mean temp. of which was only $41^{\circ}9$; during the 22 days (6th to 27th) only $\cdot 03$ in. of R fell.—*Muswell Hill*. Very dry, R barely 45 per cent. of the average ; there was a dry period from 6th to 27th, during which the only R was $\cdot 02$ in. on 12th and $\cdot 01$ in. on each of four other days, the result of wet fog.—*Finchley, Etchingham Park*. R fell on the first five days to the amount of $\cdot 14$ in., followed by 22 days with only $\cdot 01$ in. on 12th ; $1\cdot 12$ in. fell on the remaining four days.

II. *Abinger Hall*. Much damage was done by frosts at the beginning of the month, which was bright, dry, and cheerful, though cold almost to the close.—*Wallington*. R very small, little more than half the average ; temp. low, the min. especially so, while the percentage of sunlight was singularly large.—*Keston Tower*. Very fine and cold till the last week, when warm weather set in.—*Littlehampton*. The sharpest frosts ever registered in October occurred at the beginning of the month, but vegetation recovered wonderfully, heliotrope, mignonette, pomegranate, and myrtle being in full bloom at the close.

III. *Berkhampstead*. Less than half the average R ; the sun shone on an average for four hours a day ; the frost of the 2nd and 3rd committed great havoc on the foliage of trees.—*Buntingford, Throcking*

Rectory. By far the driest October in the period 1880—88.—*Abingdon Culham Vicarage.* R .92 in., the smallest fall in October for years.—*Oxford, Magdalen College.* A ridiculous month, beginning with S and frost and ending with a temp. of 67° on 27th, and fires, which were burning all August, left off again.—*Oxford, St. Giles.* An exceptional period of rainless weather occurred from 5th to 23rd inclusive.—*Stanton St. John's, Woodperry.* Wonderfully dry till the 28th.—*Bloxham.* Remarkable for severe frosts early in the month, and for 19 rainless days from 6th to 24th, the weather being exceedingly pleasant; autumn sowing delayed by the hardness of the ground.—*Northampton.* Remarkably dry, R 2·22 in. less than, or about one-fifth of, the average.

IV. *Sheering Rectory.* R 1·54 in. below, or less than half, the average.—*Ipswich, Bishop's Hill.* R less than one-third of the average; temp. very variable; the early part cold and frosty, some days towards the close very warm; a fair amount of sunshine and bright days.—*Weybread.* The first half cold, the latter half splendid weather; decidedly dry for October; a good agricultural month; 19 frosts on grass; easterly winds on 11 days.—*Diss.* The first fortnight was variable and cold, especially at night, then followed 13 rainless days with much sunshine but still cold, the third week being brilliantly fine; the last four days were rainy and warm.

V. *Bishop's Cannings.* A beautiful St. Luke's summer from 8th to 24th, very calm for the most part; R little more than one-third of the average.—*Babbacombe.* Cold and fine, with small R and little wind; the fourteenth cold month in succession; showery weather prevailed from 1st to 8th and 24th to 31st, no R was measured in the 12 days ending 22nd; it was cold from 1st to 17th, and very warm on 27th and 28th.—*Stowell Rectory.* Rather cold; humidity and temp. increasing considerably towards the end; R remarkably small.

VI. *Further Barton.* Dry and serene, with much sunshine; temp. very low at the beginning, very high at the end.—*Ross, The Graig.* In 26 days, ending 27th, only .20 in. of R fell, and only one other October (1879) has been recorded with a total fall of less than an inch; the fall for September and October was only 1·70 in., and back to 1818 there is no other instance of so small a fall in those months. The early commencement of S and frost, the large number of frosty nights (11 in shade, 16 on grass), the extraordinarily low mean temp. of the 5th, 6th, and 16th (each under 40°), and the unprecedented

warmth of the 27th and 28th were the great features of the month.—*Burton, Derby Road.* Warm and dry throughout ; the night of the 27th was the warmest (save one, August 10th) of the whole year ; R 2·39 in. below the average, and the smallest in October during 13 years.—*Hoar Cross.* Bright sunny days all through the month ; cold frosty nights till 26th ; frequent heavy fogs.

VII. *Coston Rectory.* Cold and dry ; very favourable for getting in the late harvest ; S on 2nd and 5th ; frequent fogs in the middle of the month.—*Southwell.* Very dry, with low mean temp. ; the nights were very cold throughout ; little R fell from 4th to 28th, and the late harvest was secured more easily than the most sanguine expected, and some second crops of clover were harvested in better order than the first.—*Mansfield.* A beautiful month, but with sudden changes of temp. and many fogs ; the first week very cold, the fourth week remarkably warm ; R little more than one-sixth of the average, and the smallest recorded in October during 18 years. The fall of September and October together is also unprecedentedly small.—*Worksop, Hodsock Priory.* Fine and dry, with very cold nights ; R less than in any of the previous 12 years ; on the 1st S fell for about two hours in the afternoon, and the frosts just at this time did a great deal of harm in the garden ; the last few days were very warm, and on the 28th the min. temp. was 60°.—*Derby, Elvaston.* Very fine, dry and pleasant ; cold until the 24th, then very warm. Ten frosty nights.

VIII. *Walton-on-the-Hill.* R about one-third of the average.

IX. *Leeds.* Very dry, with cold nights and frost and snow in the first week.—*Scarborough.* The month commenced with a sudden advent of winter, and the first week was very cold ; later on the weather became dry and very pleasant, and from 25th to 29th unusually mild.

X. *Ambleside, Nook Cottage.* The R of the early part of the month was very slight, and there were 16 rainless days, but in the last week 10·03 in. fell, the largest amount recorded in 14 years.—*Shap, Copy Hill.* From 5th to 23rd quite summerlike, and at times very hot ; water scarce in some places.

XI. *Llanfrechfa.* Fine ; very favourable for sowing ; frosts on the ground early in the month ; very warm from 26th to 31st.—*Douglas, Victoria Road.* The first week was wet and extremely cold for the season, but after the 8th it became milder, and brilliantly fine weather prevailed till 24th ; the remainder of the month was very wet and stormy.

XII. *Melrose, Abbey Gate.* The finest October for many years, with an almost entire absence of gales; R 1·82 in. below, or less than half of the average; wind S. or W. on 24 days.

XIII. *Edinburgh, Blacket Place.* Mild and dry; not a single frost in air.

XVI. *Dollar.* Mild and misty till the last week, then wet and unsettled.—*Coupar Angus.* With the exception of the last week, which was wet, the month was almost rainless.

XVIII. *Loch Torridon, Bendamph.* The R was abnormally heavy, the river from the mountain above the house bursting out over its banks and causing great damage.—*Glenaladale.* The first few days cold, then generally very warm, close, hazy and muggy; some high winds in the last week.—*Drumnadrochit.* Very inclement; great difficulty in securing the harvest.

XIX. *Watten H.R.S.* Very wet, cold and stormy; notable for the violent gale with S, R, and H on 4th.

XX. *Killarney.* Northerly airs during the first half; on 26th and 27th 2·94 in. of R fell at Killarney Asylum; tender plants killed off in the first week.—*Derrycastle.* The driest October on record; heavy showers on 1st, but from that date to the 27th practically no R, the amounts recorded being chiefly mist or fog; from 27th to the end showery and very rough.—*Hurdlestown.* Very fine; the first week very cold, and the last week wet; water very low in many places.—*Miltown Malbay.* An exceptionally fine October; R much below the average; springs and rivulets running dry; the first and last weeks broken and windy, the middle mild, calm and sunny.

XXI. *Ravensdale Schools.* The driest October for at least 18 years.

NOVEMBER.

I. *Lansdowne Crescent.* Total R 4·38 in.; probably the heaviest fall in November since 1861. Very mild; the mean temp. (46°·9) was the highest since 1881. No frost.—*Muswell Hill.* R 56 per cent. above the average and the largest fall in November during 16 years.

II. *Godalming, Witley.* The mildest November remembered; some days warmer than any in July.—*Abinger Hall.* A mild humid month; mists and fogs very prevalent in the earlier part.—*Wallington.* Mild; roses and geraniums continued to flower; R 1·11 in. above the average of 6 years.—*Keston Tower.* Very mild, with plenty

of R, and high winds and gales during the last half. Not a single frosty night.—*Beckenham, Foxgrove*. Very mild, only one frost; roses and numerous spring flowers in blossom.—*Littlehampton*. The wettest and roughest November recorded, and extraordinarily mild; flowers blossoming to the end.—*Lewes, Iford*. Very wet and mild.—*Emsworth*. Very mild, with strong winds and gales.

III. *Berkhampstead*. The wettest November for 10 years and the first month since August, 1887, which was at all unseasonably warm.—*Buntingford, Throcking*. The fall of R exceeded that of any other November in nine years.—*Bloxham Grove*. R and very dark and gloomy weather, but from 20th to 24th it was fine and pleasant; the temp. was high and there were only three frosts.—*Northampton*. R nearly an inch above the average; gale at night on 5th; min. temp. on 25th, 51°.—*Sedgebrook, Pitsford*. The first half of the month was cold, with E. and S.E. winds; the latter part warm, with strong winds from S. and S.W.—*Cambridge, Beech House*. Mean temp. 4° above the average.

IV. *Harlow, Sheering*. R 2·32 in. above, or within ·01 in. of twice, the average fall.—*Ipswich, Bishop's Hill*. Mild and frostless, with remarkable uniform temp.; R just one inch above the average.—*Rendlesham*. Very mild and rainy; no frost, but strong winds from E. at the beginning, and from S.W. at the end of the month.—*Weybread*. Remarkably mild and open, only seven frosts on the ground and none severe. A splendid time for getting off the root crop and sowing wheat. No heavy R; hurricane of wind with R on 20th; easterly winds on 14 days.—*Diss*. A warm November with moderate R, but chiefly remarkable for its long continued gales; no S fell and there was hardly any frost. The last week was particularly mild and gardens were still gay with pyrethrums, marigolds, and chrysanthemums.

V. *Alderbury*. Remarkable for continued R; only four dry days.—*Bishop's Cannings*. Very wet. Winds generally from S.E. in the first half, and from W. or S. from 14th to 27th. R 2 in. above the average.—*Langton Herring*. In the 17 days ending November 13th, 7·58 in. of R fell, the largest amount recorded in 17 days since observations commenced in 1875.—*Beaminster, Chedington*. November had the greatest number of wet days, the greatest R in 24 hours, and the greatest monthly fall in 6 years.—*Torquay, Strand*. Very wet, the fall having been exceeded in only five months since 1865.—*Babbacombe*. Very wet, damp, warm, stormy and cloudy, with low

pressure. The R has been only twice exceeded in 13 years, viz., in December, 1876, and October, 1880; R fell every day, but on five the quantity was less than .01 in., and including part of October more or less R fell on 38 consecutive days, by far the longest period observed. It was the first warm month since August, 1887. The extreme range of temp. was less, and the mean min. and absolute min. were higher, and the R greater, than in any of the preceding 12 Novembers. Gales on eight days; S on one day.—*Torquay, Watcombe Park*. R exceptionally heavy, comprising falls of 1.04 in. on 7th, 2.04 in. on 12th, and 1.16 in. on 29th.—*Teignmouth, Marine Villa*. R 8.18 in., the greatest recorded in any month since 1882.—*Teignmouth, Woodway*. R (8.20 in.) the greatest in November since observations commenced in 1871, more than twice the average, and exceeded only in October, 1875, and December, 1876.—*Ilstington, Middlecott House*. The wettest month during 22 years.—*Cullompton*. The heaviest R in any month since observations commenced in 1881, and on the 12th the heaviest fall in 24 hours (2.29 in.)—*Penzance, St. Clare*. R 8.81 in., believed to be the greatest record at Penzance in November. 5.02 inches fell during the first eight days—no such eight days previously recorded.—*Bodmin, Fore Street*. The only month recorded during 27 years on which R fell on every day.—*Stowell Rectory*. The wettest November since 1877. Mean temp. 4°·3 above the average of five years.

VI. *Clifton, South Parade*. The wettest November in 36 years.—*Cirencester, Further Barton*. Warm, with much R and wind.—*Ross, The Graig*. The wettest November in the 30 years recorded, and only once exceeded in Herefordshire since 1818, viz., in November, 1852. The R fell principally at night, many of the days being fair and pleasant. The river Wye only once rose slightly over its banks, showing that the mountain rains were not excessive. A very warm month, and more plants in flower than usual.—*Ludlow, Ashford*. October closed with four wet days, and 4.75 in. fell in the first 13 days of November, 1.96 in. falling on the 12th and 13th. The river Teme was bank full by the 4th, and on the 12th and 13th a considerable flood occurred, the river rising steadily till between 1 and 2 a.m. on 14th.—*Burton, Derby Road*. Very mild and damp, but remarkably free from fogs. There were only three frosts. A gale blew from W. from 20th to 24th, accompanied by a little sleet on 20th. Mean temp. 4°·1, and R .88 in. above the average.

VII. *Coston Rectory*. Very mild, with the exception of the cold

winds from 6th to 9th and the gale on the 20th.—*Ketton Hall*. Wet, dull, and changeable, only one bright day during the month; a little S on 20th; much windy weather and some gales.—*Southwell*. Very warm, wet, and dull, only two frosts in the air; from 12th to end of the month E on every day except two; only 29 hours, or 12 per cent. of possible duration, of sunshine were recorded.—*Mansfield*. Wet, warm, and windy; R 1·61 in. above the average of 18 years, and with one exception, the greatest recorded; only four frosty nights; boisterous from 15th to 27th, slight S on 20th.—*Worksop, Hodsock Priory*. Cyclonic conditions prevailed throughout, making the month warmer, wetter, duller, and more windy than in any of the previous 12 years, except 1881, which was warmer; the nights were especially warm, and the daily range was very small; temp. in shade only once fell below 32°; a little sleet on the 20th, but no S.—*Derby, Elvaston*. Remarkably stormy, windy, and warm; only one frosty night.

IX. *Halifax, Bents Norland*. The wettest month since October, 1870.—*Leeds, Oliver Hill, Horseforth*. Very wet.—*Bridlington Quay*. November was noted for a continuous series of S.W. and S. gales, with very high seas.—*Scarborough*. After the storm on 1st and 2nd, the weather was pleasant and mild till near the end, though high winds prevailed throughout; temp. unusually high from 15th to 25th.

X. *East Layton Hall*. November was remarkable for wind, R, and almost total absence of frost.—*Barnard Castle, Whorlton*. Very wet, with frequent strong gales from S.W. and W.—*Penrith, Kirkland*. The wettest month for some years; the fells covered with S on 28th.—*Uldale Rectory*. Very mild with many flowers in bloom to the close; only one touch of frost; a constant succession of gales from S.W. and W.—*Shap*. Very wet throughout, with strong winds and frequent gales.

XI. *Llanfrechfa Grange*. Very wet and very mild.—*Castle Malgwyn*. Very wet, the neighbourhood flooded several times.—*Llandefaelog-fach*. The heaviest R registered in November during 10 years.—*Douglas, Victoria Road*. Very wet and stormy; an almost unbroken series of gales, and R, with temp. above the average nearly throughout; the inshore gale from 1st to 10th was the most continuous ever recorded; no mails were landed or embarked at Douglas on 7th or 8th.

XII. *Melrose, Abbey Gate*. Very boisterous, but mild; R 3 in. above the average, and the greatest in 17 years.

XIII. *Edinburgh, Blacket Place.* Wet and very mild ; only two shade frosts ; very stormy.

XVI. *Coupar Angus.* R 2·65 in., and temp. about 2°·5, above the average of eight years.

XVIII. *Glenaladale.* The first fortnight exceptionally beautiful weather, very calm ; the next ten days excessively stormy and inclement ; a succession of violent gales with a little T and L, H, and sleet ; the last five days fine.—*Drumnadrochit.* The chief feature of the month was the continued downpour from 13th to 26th ; on the higher ground it fell as S, which, on melting on the 21st, flooded the rivers to an extent not surpassed for the last 16 years.

XIX. *Watten H.R.S.* The first week was windy, followed by a fortnight of gales and R with a hurricane on 16th ; the last week calm and frosty.

XX. *Derrycastle.* Unusually wet and stormy ; R and number of rainy days above the average ; N.E. and E. winds prevailed during the first half, and W. gales were frequent in the latter half ; no severe frost.—*Broadford, Hurdlestown.* Wet, mild, and stormy ; only three days without R ; gales on ten days, but no damage.—*Miltown Malbay.* R fell on every day but one, though not in excessive quantities ; from the middle of the month very stormy, with a furious sea.

XXII. *Clifden, Kylemore.* Very wet and stormy.—*Lawderdale.* Wet and stormy, the gale on 14th being very destructive.

XXIII. *Cushendun.* Remarkable for the constant R, gales, and want of sunshine.

DECEMBER.

I. *Lansdowne Crescent.* On the whole a mild month, but cold from 9th to 19th ; frost on 10 nights ; rather dry.—*Muswell Hill.* Although R fell on 15 days, the falls on 9 days were very small, and the total was little more than half the average.—*Finchley, Etchingham Park.* Very dry ; no R fell in the 11 days from 9th to 19th.

II. *Godalming, Witley.* Very mild from 1st to 14th, fog, with low temp., from 14th to 20th.—*Abinger Hall.* Mild and genial ; dense fogs from 14th to 19th.—*Wallington.* Unpleasant, very open, and without S, but fogs were prevalent, particularly in the middle, and at the end ; the R was slightly below the average ; mean. temp. 2°·8 above the average.—*Keston Tower.* The first week was abnormally mild, and roses and many kinds of flowers blossoming in the open ; then

ensued frosty weather from 8th to 19th, and the remainder of the month, except the last two days, was mild ; R moderate ; no S.—*Littlehampton*. Vegetation more green than usual. Very little show of winter, either by flights of birds or in any other way.—*Lewes, Iford*. The first week very mild, then ten days of frost, and the remainder of the month mild again.

III. *Berkhampstead*. Altogether snowless, air excessively damp ; .07 in. of water deposited in the rain gauge by fog, hoar frost, and dew alone.—*Sedgebrook, Pitsford*. Frost more or less from 10th to 18th, when it broke up. Hunting only stopped on the 17th. Frost on the last few days of the month. Hunting stopped on 31st.

IV. *Sheering*. R little more than one third of the average of 20 years.—*Ipswich, Bishop's Hill*. Dry and mild, with the temp. considerably above the average. Rhubarb, quite uncovered, sprouting an inch out of the ground ; japonicas in blossom on S. wall on Christmas Day. R .79 in. below the average.—*Weybread*. Mild and open ; although there were 23 night frosts, there were only two of any severity ; a good deal of fog at times. River bank high on 2nd and 26th ; very foggy on 14th, 15th, and 16th. A green Christmas ; stock still feeding in the marshes. Easterly winds on only five days.—*Diss*. The month began with a brilliant day ; then followed many days of fair, open weather, with some fogs in the second and third weeks, a gale on the 21st, and a still heavier one on the 27th and 28th ; the temp. fell to 20° on the night of the 30th, but in general the temperature was unusually high ; no S fell, and primroses were gathered on the 30th.

V. *Bishop's Cannings*. Very warm at the beginning, cold from 10th to 19th with much fog, then warm again till 29th. R about half an inch above the average.—*Babbacombe*. Warm and damp, with less than the average R. Showery from 2nd to 8th, and 19th to 28th. The mean and max. temps. were the highest in December since 1876. The number of frosts in shade (1) was the smallest recorded in December, and the date (December 31st) the latest for the first air frost of the winter. Birds were singing, trees budding, and many flowers in bloom throughout.—*Stowell Rectory*. Warm ; mean temp. 30.9 above the average of five years.

VI. *Further Barton*. Very changeable, with few fine days. S.W. gales on 21st and 27th.—*Ross, The Graig*. Wet, except during the eight days from 12th to 19th. The river Wye was twice in high flood, 9 ft. on 4th, and 12 ft. 3 in. on 29th, above summer level, the

latter being the highest flood since May, 1886. The weather was cold, though not very severe, from 10th to 19th, and on 30th and 31st, otherwise the month was very warm ; a large number of flowers in blossom.—*Burton, Derby Road*. Alternately cold and very mild ; low temps., however, were not reached till the last three days. Fogs prevailed on 8 days ; mean temp. $2^{\circ}\cdot4$ above, and $E\cdot85$ in. below, the average.

VII. *Coston Rectory*. Dry and mild ; the early part very mild, followed by a cold period from 8th to 19th, a slight rise in temp. being again followed by cold at the end. Only a few flakes of S.—*Ketton Hall*. Very changeable, with a few bright days and several heavy fogs, but not much E and no S.—*Bucknall*. Very mild to the 7th, after which sharp frosts prevailed until the 20th, followed by mild weather again till 30th ; no measurable S.—*Mansfield*. December began and ended with bright, cold weather, but was, on the whole, mild and dirty, with many sudden changes of temperature, but few severe frosts ; $R\cdot78$ in. above the average.—*Worksop, Hodsock Priory*. Mild, calm and (except for one very wet day) dry, with average sunshine, and complete absence of S.—*Derby, Elvaston*. Very warm until the 9th, and from 17th to 28th ; moderate at other times ; no S ; 11 frosty nights.

VIII. *Walton-on-the-Hill*. R considerably below the average, and temp. high throughout.

X. *Uldale Rectory*. Very mild, and free from fog and S.

XI. *Douglas*. Extremely mild and wet, with an almost entire absence of strong winds. Many spring flowers blooming at the close.

XII. *Melrose, Abbey Gate*. Very mild ; field and garden work well forward ; $R\cdot18$ in. below the average ; wind from S. or W. on 21 days.

XIII. *Edinburgh, Blacket Place*. Mild and dry ; very mild from 2nd to 8th, the temp. rising above 50° each day.

XVI. *Stronvar*. Very wet, with high temp.

XVIII. *Glenaladale*. Beautiful weather throughout ; remarkably mild and calm.—*Drumnadrochit*. Remarkably mild ; gorse, primroses, and different kinds of garden roses freely blooming in sheltered situations.

XIX. *Watten H.R.S.* The first three weeks exceptionally mild, dry and open, with strong winds ; the last week wet, cold and variable.

XX. *Killarney*. Very wet ; ground sodden ; just 11 inches of R.—*Derrycastle*. A soft and sloppy month ; stormy and very wet during the first week, and again from the 20th to the close.—*Hurdlestown*. Cold, wet and very stormy ; a slight fall of S occurred on 25th, being the first of the winter.—*Miltown Malbay*. Exceedingly mild and very rainy, with very little frost and no S.

XXI. *Currygrane*. Many wet days, and the land everywhere saturated, making farming operations very difficult.

XXII. *Lawderdale*. Wet and mild.

XXIII. *New Barnsley*. Variable throughout, but open on the whole.

OBSERVERS' NOTES ON THE YEAR 1888.

ENGLAND.

DIVISION I.—MIDDLESEX.

TEDDINGTON.—Spells of drought and spells of wet. Until June, and even July, lack of water was feared, the springs being very low. At the end of the year they had scarcely risen, and the ground was not saturated. The summer was the most ungenial since 1879, but far from being so unkindly as that sad atrocity.

ISLEWORTH, SPRING GROVE.—R 3·50 in. above the average. The number of days with ·01 in. of R was 128, with less than ·01 in. was 24, leaving 213 on which none fell.

KENSINGTON, EDITH ROAD.—Absolute drought prevailed from October 13th to 27th—15 days. There were many TSS in the summer, but none of any severity. It is singular that though the R of July was 5·10 in., the greatest fall in 24 hours was only ·55 in., less than 11 per cent. of the total for that month.

LANSDOWNE CRESCENT.—Chiefly remarkable for the cold period, which may be said to have lasted from January 27th to October 25th, and for the excessive rain of July and November. The coldest year since 1879.

LONDON, CAMDEN ROAD.—The number of days on which R fell was exceptionally large.

HAMPSTEAD, ROSLYN.—A sunless, wet year. Fruit could not ripen for want of sun.

MUSWELL HILL.—The total R exceeds the average of 16 years by only ·26 in., or less than 1 per cent. The number of days on which R fell was about 6 per cent. above the average. The departure of several months from the average was very great.

EXCESS OVER AVERAGE.				DEFICIENCY FROM AVERAGE.			
	Total R. in.	Amount. in.	Per cent.		Total R. in.	Amount. in.	Per cent.
March.....	4·15 ...	+2·45 ...	144	January ...	1·08 ...	-1·32 ...	55
July	4·34 ...	+1·78 ...	70	February..	·97 ...	-1·10 ...	53
August ...	3·86 ...	+1·33 ...	53	September.	1·18 ...	-1·55 ...	57
November	4·58 ...	+1·64 ...	56	October ...	1·33 ...	-1·64 ...	56

There was no drought, either "absolute" or "partial" but the longest dry period was from September 30th to October 27th, 28 days, during which only .23 in. fell.

FINCHLEY, ETCHINGHAM PARK.—The total R was probably about the average, its characteristic being the unequal distribution. March, July, August and November all had falls very much in excess; April and June less so, whilst January, February, May, September, October and December all show considerable deficiencies. On three occasions more than an inch of R fell in 24 hours. One absolute drought occurred, October 13th to 27th inclusive = 15 days, and but for .01 on 12th this drought would have lasted 22 days.

DIVISION II.—SOUTH EASTERN COUNTIES.

HASLEMERE, GRAYSWOOD HILL.—R somewhat above the average, and unequally distributed. The rains of the last week in June and in July were torrential and very partial.

DORKING, ABINGER HALL.—A dull, cold and somewhat sunless year; much hay was spoilt, and crops of all kinds of grain matured very indifferently. A short spell of dry weather enabled the corn to be secured in good condition.

GUILDFORD, GUILDOWN.—R slightly below the average; June, July and August, very wet.

FARNHAM, THE BOURNE VICARAGE.—R .32 in. above the average; January and February were very dry, and July was very wet.

REIGATE, RINGLEY MEAD.—A very cold, wet, summer, the temp. in July only twice reaching 70°.

KENLEY, INGLESIDE.—A cold year; very heavy falls of S in March; April and May dry, R falling on only six days in the latter month; July very wet, October dry and fine, November wet, December remarkable after the 9th for continued fogs.

BENENDEN, EAST END.—The severe and protracted winter was very bad for agriculture, and the cold, wet, summer spoilt the heavy hay crop, none of which was well secured except in August and September. Harvest very late and inferior, but the fine September and October enabled much of the summer work to be completed. Apple crop very short, hops blighted in some places and mouldy in others. Out-door grapes hardly ripened at all; wasps nearly as scarce as in 1886.

TENTERDEN.—R below the average, six months having falls of

less than two inches ; no fall reached an inch in 24 hours. January, May, August, September and October were all dry, the last three together having a smaller fall than in any year during a quarter of a century, and March and July were wetter than in any year for the same period. Very heavy falls of S occurred in February and March, and there were six days with S from April 1st to 10th, but none fell at the end of the year. There was not much high wind. June and July had more TSS than of late years, but August and September were very free from them. Temp. above 70° only five days in July, against 28 in 1887, and 25 during the year, against 58 in 1887 and 72 in 1884. The second week of August was the best of the summer, but the finest weather of the year was in September and October. From October 4th to 27th less than an average .01 in. of R per day fell. No fall of R of so much as .20 in. occurred from January 1st to February 12th, and there were five other periods of 25 to 27 days with no fall over .25 in.

GOWDHURST VICARAGE.—A long and late spring was followed by a cold summer. Favourable weather for hop-picking, and good crop. Peas lasted in bearing till October, owing to a fine autumn.

TUNBRIDGE WELLS, CAMDEN PARK.—The chief features of the year were the prolongation of the winter into the middle of April, so that by May 1st there was hardly a green flush on any of the trees ; then the wet and comparatively cold months of June, July and August, July being extremely deficient in sun ; November was almost without frost, and there was no sharp cold in December, so that thrushes were singing freely, and many flowers bloomed in the garden.

HAREFIELD, SELLING.—R 1.83 in. above the average of ten years.

SITTINGBOURNE, SHARSTED COURT.—A cold spring, a wet cold summer, and late harvest.

KESTON TOWER.—A year notable for its very low temperature (except November, in which the temperature was much above the average), especially in June, July, and August, during which months a great amount of R fell. February, March, and April were extremely cold, and the summer was cold and wet.

RECVLVER, BROOK.—Frost and S continued into the spring, and although the first part of May was dry, the surface of the ground was so hard as to be bad for vegetation. The end of June and all July had so many wet days that hay-making suffered, and the low temperature and little sunshine injured the corn crops. August was little better, but the autumn was favourable.

HAYES, LAYHAM'S FARM.—The year was marked by long spells of comparatively dry weather, and by a disastrous period of heavy rain, beginning on June 26th and lasting till August 1st, in which time 8·25 in. of R fell, spoiling the hay and reducing the yield of wheat and barley very materially.

MARGATE, APSLEY HOUSE.—R below the average, the fall being the smallest, with one exception, of the last eight years. There were no very heavy falls, '50 being exceeded on only seven occasions.

BECKENHAM, FOXGROVE.—A cold spring ; a very short, cold, wet summer, with very little sun. Hay crop very late and nearly all spoilt by R in July, which was a very cold month and the wettest since August, 1878. Wet periods—July 2nd to 6th, 2·02 in. ; July, 27th to August 1st, 2·52 in. ; October 28th to November 2nd, 2·59 in.

LITTLEHAMPTON.—The first half of the year threatened a water famine, but the second half a deluge.

WORTHING, HEENE.—R 2·38 in. below the average of 20 years.

EASTBOURNE, EAST DEAN.—The year was chiefly remarkable for the low temperature of the first eight months, and the deficiency of sunshine during the summer. R ·89 in. below the average of five years.

LEWES, BEDFORD LODGE.—R 4·06 in. below average of 20 years.

WINCHELSEA, THE FRIARS.—Very dry, and scarcity of water in the late spring, and again in August and September.

BRYCKDEN.—The R exceeds the average of five years by 4·12 in., which excess seems owing to the heavy falls in June and July.

MARESFIELD, FOREST LODGE.—The R presents some curious peculiarities. In eight months out of the 12, the amount registered was in deficit of the average of 30 years ending 1885, but the total amount was exactly ·80 in. in excess of that average. The deficiency was made up in March, June, July and November, the R fall in which was above the average, notably in July, when the excess was 4·05 in., and actually 2·12 in. above the heaviest previously registered, that of July, 1865.

FOREST ROW, ASHDOWN COTTAGE.—Destructive frosts in March and April ; low temperature and occasional frosts in May ; June, July and August cold and wet ; most of September cold and dull ; October cold ; vegetation irregular all the year. Wild flowers, polyanthus, primroses and others in blossom in December. The cause of the general cold apparently was not from want of solar heat,

but from the unusual interception by fog and cloud, the sun being hot when not obscured.

EAST GRINSTEAD, OLD STONE HOUSE.—The summer months were cold and sunless, with constant rain ; it was not so much the amount of R as the number of days on which it fell that kept the ground so wet ; in June, July and August there were 47 rainy days, as against 15 in 1887.

WOOTTON, FERNHILL.—Remarkable for the great number of rainy days through the summer ; in fact there was no summer, but a ten months' winter.

CHRISTCHURCH, MUDEFORD.—Although the number of rainy days was 30 above the 15 years' average, the R was .62 in. below the average, and water was short in October ; March was the wettest March recorded here ; November was unusually mild.

EMSWORTH, REDLANDS.—The first eight months were cold and wet, the small amount of sunshine being remarkable ; the R of July was the greatest in any month since the record began in 1884. The last quarter of the year was unusually mild, rough weather alternating with fog.

SOUTHAMPTON, RED LODGE.—A rainy, cold summer, followed by a fine, pleasant autumn.

HARESTOCK.—The year, excepting June and July, was generally fine and dry, January and February especially so. Remarkably few sun spots, and those of large size somewhat rare, frequently none were visible.

ROTHERWICK, TYLNEY HALL.—The most persistently wet hay time remembered ; it rained on 30 days in July.

FLEET, CLAREMONT HOUSE.—A cold and dismal year, and though the total R was not excessive, it seemed a very rainy year, and roads and drains were often flooded. Many TSS occurred, which are rare in this immediate neighbourhood.

HUNGERFORD, DENFORD PARK.—The year of greatest number of wet days during the last 10. During November and December there were only eight days on which no rain was registered ; March also exceedingly wet.

ALRESFORD, OVINGTON.—In the six months, April to September, 17.84 in. of R fell, while in the remaining six months the fall was 14.71 in.

READING, PORTLAND PLACE.—March cold with much precipitation ; May dry and fine ; summer cold and wet, especially July,

when R fell on 28 days ; September and October fine ; 16 frosty nights in October, but very warm from 25th to 28th, followed by much R ; November very mild with much R, and only one frost ; December very mild till the 7th, much fog and rime from 9th to 18th, and on 31st.

READING, EAST THORPE.—R .34 in. below the average of 10 years ; number of wet days 23 above the same average.

DIVISION III.—SOUTH MIDLAND COUNTIES.

ST. ALBANS, THE GRANGE.—R very unequally distributed over the year, spring dry (except March), summer very wet, autumn (except November) and winter also dry. The fall in March, June, July, August, and November averaged 3.91 in. per month, and in the remaining seven months only 1.25 in. per month.

HITCHIN.—Very dry, making with 1887 the two driest years in succession in our record. Great destruction of fish by the drought, and a prospect of some trout streams being entirely disestablished. The warmest November on record, and only five warmer Decembers.

BUNTINGFORD, THROCKING RECTORY.—R 1.50 in. below the average of 9 years, the year ranking third as regards smallness of fall, 1884 and 1887 being less.

SLOUGH, LANGLEY.—Most R fell when farmers wanted it least, the three wettest months being March, July, and November, or seed time, haymaking, and wheat sowing, otherwise the R was of a very ordinary character.

GREAT MARLOW.—R 3.39 in. less than the average of 10 years.

ADDINGTON.—R below the average ; July and November were the wettest months, yielding more than a third of the total fall. The summer months were cold and dull. October was cold with much frost, November and December unusually open.

OLNEY, FILGRAVE RECTORY.—R 4.58 in. below the average of 14 years.

WHITCHURCH.—Markedly dull, duck skies frequently dripping, but no heavy R. I consider that our water store (subterranean) must be very low. I constantly pass the bank of a cutting on my hill, which is sheltered from lateral rain, and have been able to rub a piece of mould, taken from below 4 ft. of surface, to dust without soiling my fingers any time since July, 1887.

ABINGDON, CULHAM.—A very late season. Summer wet and cold

during the earlier part. Harvest exceptionally late, some corn out in November. October the driest recorded for many years.

WATLINGTON, PYRTON.—The R of the year was of an irregular character. The months of March, July, and November giving a total of 13·21 in., more than half the yearly total; January, September, and October were very dry. In February 20 inches of S fell; TSS were frequent in June. Partial drought (·45 in. in 48 days) from September 10th to October 27th inclusive. Out of 174 days on which R fell in the year, 27 days registered only ·01, showing the necessity of visiting R gauges daily.

OXFORD, ELSFIELD.—Total drought from October 6th to 22nd, both inclusive.

BANBURY, BLOXHAM GROVE.—The late spring was cold and ungenial, the summer cold and gloomy. Excessive R in July, September favourable for harvest, and the fine weather in October for wheat sowing.

THRAPSTONE, HARGRAVE.—Temp. very low during the spring and summer, but the ill effects thereof counteracted by the moderate R following the very dry season of 1887. The result has been fairly good, although harvest was very late.

KETTERING.—R 2·73 in. below the average of 25 years.

MAXEY VICARAGE [MARKET DEEPING].—More than ·50 in. of R fell on eight days, but no fall reached an inch. The longest period without R was 12 days, May 3rd to 15th; the longest rainy period was ten days, April 15th to 24th. R 1·96 in. below the average of seven years; rainy days 12 above the average.

CAMBRIDGE, FULBOURN ASYLUM.—A mild dry spring, wet gloomy summer, fine mild autumn. R below average; no S after March 26th. November exceptionally warm, frost on only one night. Temp. above 70° on 20 days, above 80° on four days.

ELY, LITTLEPORT VICARAGE.—Remarkable for the quantity of S which fell in April; for the prevalence of cold nights throughout the summer, and for the absence of violent TSS.

WISBECH, COLDHAM HALL.—A cold year and everything much behind its season. A very dry spring and early summer. Wet July and August, and exceedingly fine and open autumn.

DIVISION IV.—EASTERN COUNTIES.

DUNMOW, HIGH RODING.—R 1·46 in. above the average of 22 years; wet days 11 above the average.

EARL'S COLN, CHALKNEY.—A very wet year; no wonder that, with 4·40 in. of R in July, the partridges were all killed.

IPSWICH, BISHOP'S HILL.—R only ·03 in. above the average. March, July, and November were very wet; May, October, and December were very dry. The other six months did not widely differ from the average. The year may be fairly described as almost summerless, and divided into three nearly equal periods, viz., winter, spring, and autumn.

RENDLESHAM.—A cold wet summer, dry October and December, wet muggy November. No snow in the latter part of the year, and but little frost till the end of December.

BURY ST. EDMUNDS, DRINKSTONE PARK.—Not a wet year, R being about 2·75 in. less than the average, but a sunless one.

BURY ST. EDMUNDS, WESTLEY.—R ·15 in. above the average of 32 years.

DISS.—A late cold spring, with S as late as the second week in April, was followed by a cold wet summer. The hay was damaged by R, and the harvest delayed. Cereals fair in quantity but damaged, roots excellent. The R of July, 5·85 in., was the heaviest in 18 years. The last two months were remarkable for their warmth; no snow fell up to end of year, and wild primroses were gathered in the last week. Strong winds and gales were nearly incessant throughout November.

GELDESTON [BECCLES]. Total R 2·56 in. below the average. All the months had less than the average except March, July, August, and November. July the wettest recorded during 23 years.

NORWICH, ESSEX STREET.—The R register for 1888 completes the fiftieth year of my observations. The average R during these 50 years, as registered by myself, has been 24·42 in.; from 1839 to 1873 at Dickleburgh, being 35 years, 23·15 in.; 1874, ten months Dickleburgh, two months at Norwich, 19·45 in.; 1875 to 1888 inclusive, 14 years, at Norwich, 27·97 in. I have just compared the past six years' register at Rushall, by Mr. Gape, within two miles of Dickleburgh, in the Waveney Valley District, with my own at Norwich, in the Wensum and Yare Junction District. I find the R at Rushall average 24·84 in., and my own register at Norwich average 26·29 in., showing the Wensum and Yare District to be

1·45 in. in excess of the Waveney Valley District, which is about 18 miles south of Norwich and about 32 ft. higher above the level of the sea, viz., 117 ft. against 85 ft. On reference to my extract of the monthly depth of R in the east of England during the past 60 years of the present century from the following sources, viz., from 1801 to 1831, at Tottenham, by Luke Howard ; from 1832 to 1838, at Epping, by T. Squire (from Old Moore's Almanack, I believe), and at Dickleburgh, Norfolk, from 1839 to 1860, by myself, I find the average depth of R was 24·65 in. [*See previous article on "East Anglian Rainfall."*]

EAST DEREHAM.—The most remarkable features of the year were the extraordinary cold which prevailed, almost without intermission, from January 11th until June, and the high temp. in October and November. Mean temp. of the year more than 2° below the average, and R about 1·50 in. below the average.

DIVISION V.—SOUTH WESTERN COUNTIES.

SALISBURY, ALDERBURY.—Though the general opinion is that it was a very rainy year, the fall was below the average. The three months, March, July and November, had only an inch less than half the total of the year.

SALISBURY.—R ·46 in. above the average of 12 years.

CONHOLT PARK.—The year began cold and frosty, with heavy falls of S in February and hard frosts continuing late into the spring. June was very wet and cold, with frost on 18th ; July still colder and wetter, with frost on three nights ; August cold and wet, with very little sunshine and four frosts ; September cold and dull ; November and December very wet.

BISHOP'S CANNINGS.—R ·40 in. below the average. June and July cold and wet, with hardly any sunshine. November, the wettest month, brought the fall about up to average. December mostly warm.

WEYMOUTH, LANGTON HERRING.—With the exception of March, the first five months were very dry ; June and July were wet. The remaining months were dry, excepting November, when 7·99 in. fell. Total for the year 1·10 in. below the average. Mean temp. 48°·3.

WEYMOUTH, OSMINGTON LODGE.—R 2·58 in. below, and wet days five above, the average.

BLANDFORD, TARRANT KEYNSTON.—R 1·22 in. below the average of 10 years.

WIMBORNE MINSTER, CHALBURY.—Although the total R was about 4 in. below the average, the number of days on which R fell was about 10 above the average. There were only four days in June, four in August, and none in July on which the shade temp. reached or exceeded 70°.

BABBACOMBE.—A cold, damp year, with great deficiency of sun heat. Less R than usual, and rather high bar. The coldest year since 1879. The mean daily range of temp. (10°·8) was less, and the mean sun max. (97°·5) lower, than in any year since the observations began in 1876. The longest consecutive dry periods were 14 days, from February 20th to March 4th, and September 10th to 23rd; the longest wet period was 21 days, from October 28th to November 17th, with 7·50 in. of R. The R fall was very irregular in its distribution; the total of the three driest months, January, February, and September (which were each the driest of that name yet observed) was only 2·22 in., or 6 per cent. of the year's total, whilst the total of the three wettest months, March, July, and November (which were the wettest of that name yet observed) was 20·41 in., or 55 per cent. of the year's total. The total fall was 1·38 in. (or 4 per cent.) below, but wet days one above, the average. The first 10 months were cold, especially February, March, April, and July; the last two warm.

TORQUAY, WATCOMBE PARK.—An unusually dry February and September, very wet July and November, the latter exceptionally so, with three falls exceeding an inch in 24 hours.

ASHBURTON, DRUID HOUSE.—R fell every day from October 24th to December 8th, 45 days.

KINGSTEIGNTON, TEIGNBRIDGE HOUSE.—A small R in January and February; a large number of rainy days in July; in November the heaviest R in any month during 15 years.

BOVEY TRACEY, COLEHAYS.—July and November were about two of the wettest months known in this neighbourhood, and the year was one of the coldest and wettest.

EAST BUDLEIGH.—The fall of R up to October 28th was only 20·34 in., and from October 28th to December 8th 10·04 in., falling on 35 days out of 45.

CLEVELANDS [LYME REGIS].—The wettest July and November registered in 21 years.

AXMINSTER, GREAT TRILL.—Absolute drought prevailed from March 30th to April 14th, 16 days; from September 5th to 22nd, 18 days; and from October 5th to the 23rd, 19 days.

BIDEFORD, HORWOOD.—A cold, wet year, which caused a very bad harvest.

PARRACOMBE.—Heavy S in March; the spring R deficient; summer very wet; autumn dry; November an extraordinary R, 9·18 in. on 28 days.

PENZANCE, PENLEE.—R about 1·00 in. below the average of several years.

LISKEARD, DEAN TERRACE.—Heavy R in March, July, and November; the rest of the year dry. Total fall 1·50 in. below the average of 25 years.

BINCOMBE.—R 1·60 in. below the average of 20 years.

WHITE LACKINGTON.—R 1·14 in. above the average of 17 years; wet days, 19 above the average.

SOUTH PETHERTON.—Winter and spring cold; summer wet; September and the first three weeks of October good for farm work; November and December wet, cold and dull.

MILVERTON.—An extraordinary year. Summer very wet, with 6·00 in. of R during July; the autumn very dry, but November the wettest month recorded. Total R 1·50 in. below the average.

EXFORD RECTORY.—More remarkable for the long periods of consecutive days on which R fell, than for the quantity. In July R fell on every day except one; from October 24th to December 9th R fell on 47 consecutive days, including the whole month of November.

STON EASTON.—R 1·13 in. below the average of 20 years.

HARPTREE COURT.—Total R, in spite of the heavy falls in July and November, was more than 2·00 in. below the average of six years. Absolute drought prevailed for 17 days, from September 10th to 26th.

BATH, ROYAL LITERARY INSTITUTE.—R 3·59 in. above the average of 28 years. Temp. below the average. November and December mild.

DIVISION VI.—WEST MIDLAND COUNTIES.

FRAMPTON-ON-SEVERN, SAUL LODGE.—R 1·10 in. above the average of 30 years. The continuous R in June and July, and the great absence of sunshine, prevented fruit ripening.

NEWNHAM-ON-SEVERN.—The winter continued until March. The summer was chilly, showery, and wet, and November had the greatest R recorded in any month during 16 years.

NORTHLEACH, HAMPNETT RECTORY.—R 2·51 in. below the average of seven years.

GLOUCESTER, LOWER BARTON STREET.—The R about the average, but irregularly distributed. Much S fell at the beginning of January, and it continued occasionally even into April. January, September, and October were exceptionally dry, and July and November wet. In the four months, June, July, November, and December, 16·07 in., or 60 per cent. of the total R for the year fell. There were no heavy falls, and there was very little T.

ROSS, THE GRAIG.—R 2·60 in. above the average. There is no other instance, since 1818, of January and February having so small a fall, viz., 1·79 in., or of September and October 1·70 in. in the two months. November had a larger fall than any month in 70 years, except November 1852. The year was remarkable for the amount of S (yielding about 3·00 in. of water and so representing a depth of 3 ft.), for the wet July and November, and for the great coldness of the late winter and early spring.

HEREFORD, BURGHILL.—Falls of an inch in 24 hours have been very rare of late years, but three such falls were recorded in 1888.

PEMBRIDGE, MARSTON.—Short supply of water till June. A cold summer and wet hay harvest.

LUDLOW, ASHFORD.—The Trent was in flood several times.

BISHOP'S CASTLE, CASTLE STREET.—The wet July prevented a water famine in the autumn, but even at the end of September several springs were failing.

SHREWSBURY, ONSLOW HALL.—A dry and very late spring, cold and wet summer, and wet autumn with very early frost.

MARKET DRAYTON, BUNTINGSDALE.—A late spring, a cold ungenial summer with very little sunshine, and a mild autumn.

ADDERLEY RECTORY.—R 3·08 in. below the average of ten years.

HANDSWORTH.—R 5·26 in. below the average. In January and February the deficit was excessive, amounting to 3·68 in., but September and October showed an even greater deficiency, viz.,

5·71 in., the fall in October (usually the second wettest month of the year) being only ·28 in. on five days. The July fall, 6·16 in., was immense, 3·33 in. above the average, and only four days were without R. Two droughts occurred, one of 14 days, from September 9th to 24th, and one of 23 days, from October 4th to 28th; concurrently with the last there was a partial drought of 37 days from September 24th to November 1st.

BURTON, SHOBNALL.—R 5·11 in. below the average of 13 years, and rainy days 21 below the average of the same period.

BURTON, DERBY ROAD.—Cold and dry, the mean temp. being 1°·4, and the R 6·16 in., below the average of 12 years. The R was, with the exception of that for 1887, the least during 13 years. The cold spring, the warm May, the cold and wet July, the dry autumn, and the warm November and December were the most prominent features of the year.

TEAN VICARAGE.—The most noticeable features of the year were the abnormally cold and wet July and the scarcely less abnormal warmth of November and December. If these two months be excepted, 1888 was like its three immediate predecessors, emphatically a cold year. There were only 13 days in the first ten months that could be called really warm for the time of year.

EVESHAM, LANSDOWNE.—A cold spring, cold wet summer, and fine dry autumn. November very wet.

TENBURY, ORLETON.—Mean temp. a trifle lower than that of last year, 1°·9 below the average of 27 years, and below every year except 1879, when it was 1°·3 lower. In November the mean temp. was nearly 5°·5 above, and in May and December it was slightly above. In the other months, especially July, it was below.

KENILWORTH, THE SPRING.—There was one absolute drought of 19 days from October 5th to 23rd.

DIVISION VII.—NORTH MIDLAND COUNTIES.

MELTON MOWBRAY, COSTON.—Comparatively dry, the R being 4·00 in. below the average of 12 years. The heavy S in February and the cold dull summer were the features of the year.

UPPINGHAM, WEST DEYNE.—Very dry, the total being about 5 in. below the average, although the number of wet days was slightly above the average. October was exceptionally dry, only four months having been drier since March, 1873.

KETTON HALL [STAMFORD].—Remarkable for the small amount of sunshine during the first eight months, and for the cold, wet, and dull weather during that time. The autumn was fine.

LINCOLN, DODDINGTON.—Remarkable for the dull, cold summer and the great R of July, 6·39 in., which has been exceeded only in one month during 17 years. The total fall was rather below the average.

LOUTH, GOSPEL GATE.—Mean temp. 1°·7 below the average of 24 years. R 4·22 in., and number of rainy days 13, below the average of the same period.

ULCEBY, LIMBER GRANGE.—Winter lasted far into spring. The summer was very cold, wet, and sunless, July being especially wretched. The autumn was the finest part of the year.

CROPWELL GROVE.—R 3·19 in. below the average of 16 years.

NOTTINGHAM, STRELLEY HALL.—Total R about 3·75 in. below the average. The driest May, September, and October since observations commenced in 1879, and the wettest December. Number of wet days rather small.

SHELTON RECTORY.—Everything out of season. A very cold March with S; a very dry May, and wet July. A dry October with great range of temp., and S on several days.

MANSFIELD, MARKET PLACE.—A late, cold, dry spring, a very wet July, a cold October, and a mild, dirty winter. January, May, and September were each the driest recorded here, and October was the coldest, with frost on 17 nights.

WORKSOP, HODSOCK PRIORY.—Very cold, very dull, and rather dry. The cold was more remarkable for its long continuance than for its intensity at any particular period; from early in January to nearly the end of October there were very few weeks in which the temp. was at all above the average, the deficiency, again, was greater in the daytime than at night. The only month during this long period which showed an improvement on the rest was May, when, though the nights were cold, the days were fine and warm. At the end of October a rise of temp. occurred, and the rest of the year was warm. Mean temp. about 1°·7 below the average, and lower than any of the previous 12 years, except 1879. There were very few days on which the temp. exceeded 70°. R very deficient up to the end of June (though there was a small excess in March); July, however, was very wet. Another dry period then followed to the end of October (except for a heavy fall on August 28th), November was

wet, and December dry, though with one very wet day near the end. Total R about 11 per cent. below the average. Only 1,065 hours, or 24 per cent., of sunshine was recorded, which is less than any of the previous seven years.

DERBY, ELVASTON.—January, February, May, September, and October were very dry; April, June, August, and December near the average; March and November stormy and wet; July very wet and cold, with double the average R. Temp. above the average in January and May, and much above it in November and December, considerably below in all other months, particularly February and July. 65 frosty nights during the early months, and 22 in the latter. Mean temp. $46^{\circ}6$, the same as in 1887.

WIRKSWORTH, HOLLOWAY.—R 8 in. below the average of ten years.

DIVISION VIII.—NORTH WESTERN COUNTIES.

FRODSHAM, FOX HILL.—A cold and ungenial year, remarkable for having three months with less than an inch of rain in each, and no fall of an inch in 24 hours. Total R about 8·00 in. less than the average.

CHELFORD, ASTLE HALL.—From January 15th to April 26th the weather was very cold; May was dry and hot, June, July, and August were wet; then followed two months of grand harvest weather.

NORTHWICH, WINNINGTON.—The first five months were very dry, and after the dry preceding year water was becoming scarce, but the wet summer prevented the scarcity becoming serious.

NESTON, HINDERTON.—R 18 per cent. below average of 20 years.

AIGBURTH, KELTON.—R 4·39 in. below the average of 10 years. The great deficiency was in the first six months, when only 8·93 in. fell, being slightly (·09 in.) less than that of the first half of the exceptionally dry year, 1887. The second half of the year had more than the average, and the July fall was unusually large.

SOUTHPORT, HESKETH PARK.—The R 7·14 in. below the average of 16 years.

OVER DARWEN, ST. JAMES' VICARAGE.—The first six months were very dry, only 12·98 in. of R falling; July was remarkably wet. There were five days on which an inch or more of R fell.

CLAYTON-LE-MOORS, OAKENSHAW.—A variable spring, with late frosts, and a very wet summer, with temp. below the average.

ECCLESTON, ELSWICK LODGE.—R below the average in every month except July and November, and the total 3·25 in. below that of any year of the last 16, except 1887. Temp. slightly below the average.

BARROW-IN-FURNESS, CAVENDISH PARK.—R 2·16 in. below the average of 16 years, and number of rainy days three below the average.

ARKHOLME, STORRS HALL.—A cold, dry spring, wet summer, and very mild autumn. S fell on October 1st, and no further fall occurred to the end of the year.

CARTMEL, HOLKER.—R 8·50 in. below the average of 14 years. The first six months were dry, followed by a wet July. September was a dry, fine, sunny month; October 1st was remarkable for the damage done by the heavy snowstorm and sharp frost at night. The weather cleared again, and continued open to the end of the year.

ULVERSTON, POAKA BECK.—R ·25 in. above the average. The distribution throughout was irregular. At the end of the first half the fall was 26 per cent. below the average. January, February, and September were very dry; July and November were very wet, the former being 91 per cent. above the average.

CARTMEL, PIT FARM.—Dry till the end of June, about twice as much R falling in the last six months as in the first six.

CARTMEL, BROUGHTON HALL.—Remarkable for the extreme dryness of the first six months, and also of the whole year, which following 1887, has reduced the average from 51·19 in. for 18 years, to 49·58 in. for 20 years.

ULVERSTON, COLTON.—R 6·09 in. below the average of 14 years.

HAWKSHEAD, GRIZEDALE HALL.—A very wet year, but not remarkable for its total fall, which is much below 1886, though above 1887; 4·19 in. fell in three days, October 25th to 27th, and it was very wet from November 12th to 27th, more than ·10 in. falling on each day.

DIVISION IX.—YORKSHIRE.

DONCASTER, FIRSBY.—The S during the latter part of February and in March came very opportunely, as the impounding reservoirs were within six weeks of exhaustion. The heavy R of July was apparently all absorbed, as it yielded little or nothing to the reservoirs.

WATH-UPON-DEARNE, CHAPEL STREET.—March, July, and November were wet months ; the remainder had less than the average fall, the total for the year being 11 per cent. below the average of 25 years. Much less T and L than usual. No snow in December, and only a little in November.

STAINBOROUGH, WENTWORTH CASTLE.—R about 1·50 in. below the average of 10 years. January, May, and October were comparatively dry months, whereas March, July, and November were wet.

DONCASTER, PUMPING STATION.—R slightly below the average ; the heavy falls of July and November redeemed the year, which otherwise would have been a very dry one.

MELTHAM, HAREWOOD LODGE.—Colder than any year since 1879. The summer months, June, July, and August were each of them colder than the corresponding months in 1879, and were consequently of a most disagreeable character. The R was only slightly below the average of seven years, but was unevenly distributed, November being by far the wettest month recorded, and July and November together furnished more than 40 per cent. of the total fall, while January, February, May, September, and October were very dry.

HUDDERSFIELD, GOLCAR.—Remarkable as being the wettest summer recollected.

HUDDERSFIELD, DALTON.—The R of November was the heaviest recorded in any month since observations began in 1866. Total fall for the year 2·18 in. below the average of 13 years.

WAKEFIELD, ALVERTHORPE HALL.—The weather throughout the year was most unsatisfactory. The R was below the average, and there was a remarkable absence of TSS. The spring was cold and late, and towards the end of May a high wind with heavy R destroyed nearly all the fruit on the trees, and the residue, from the want of sun, never got ripe. On the night of October 1st a keen frost set in, which in a few hours changed the summer's brightness into a scene of desolation. During upwards of 80 years I cannot recollect a summer so cheerless.

KNARESBOROUGH, FARNHAM.—R 4·58 in. below the average of 10 years.

HALIFAX, THORPE.—R 7·10 in. less than the average of 19 years.

INGLETON, HALSTEADS.—The R of the first six months was 1·86 in. less than in 1887, but the deficiency was made up in the following six months.

SEDBERGH, BRIG FLATTS.—Dry generally, except in July, August, and November.

HULL, DERRINGHAM.—1888 will be chiefly remarked for its wet summer, followed by a fine autumn and mild winter, but in summer the wetness consisted more in the frequency of the R than in the quantity, which was really less than in seven previous wet seasons, including 1860, as will be seen from the table. The harvest of 1860 and 1879 were both conspicuously bad, yet the record for 1888 shows less rain, but a greater number of wet days. 1888 had the wettest July for 38 years.

June to September, 1860.....	13·46 in. on 64 days.
„ „ 1866.....	13·62 „ 69 „
„ „ 1872.....	12·27 „ 67 „
„ „ 1875.....	12·39 „ 50 „
„ „ 1877.....	12·46 „ 67 „
„ „ 1879.....	12·59 „ 74 „
„ „ 1880.....	12·65 „ 65 „
„ „ 1888.....	11·71 „ 80 „

Hours of sunshine 9,206, against a four years' average of 10,724.

COTTINGHAM.—The greatest number of consecutive days with rain was nine in March ; the greatest number without R was 14 in May, which was the driest month. July was the wettest month, and had more than nine times as much R as May.

BEVERLEY, ALEXANDRA TERRACE.—Cold and wet, especially in June and July. Gales all through November. Temp. above 80° on only two days.

BEVERLEY, HULL BRIDGE.—Remarkably wet and cold summer.

THIXENDALE.—A cold backward spring, followed by a cold and wet summer. Much S from the middle of February to the middle of April, roads being drifted up as late as April 14th. From October 13th a fortnight of brilliant weather. December very mild, with a “green Christmas.”

HUNMANBY, WOLD NEWTON.—The S falls in March and April were very severe, communication with the upper part of the valley being almost cut off for many days. The S was only cleared off by the great R of April 19th and 20th.

BURTON HOUSE.—Heavy S storms, accompanied by severe frosts, occurred during February and March, followed by cold and dry weather into June, when, for a short period, the weather was more seasonable. July and August were exceptionally wet, with a great absence of sunshine. The greater part of September and all October were fine and sunny. November was mild but wet, and December open with frosty periods.

AYSGARTH VICARAGE.—Remarkable for the heavy S storms in February and March, the drought in September and October, and the great R of November.

SCARBOROUGH.—Remarkable for the low temp. and for the heavy R in the summer months. The latter halves of September, October, and November were remarkably mild and fine.

INGLEBY MANOR.—A cold dry winter was followed by a cold dry spring. The summer was very cold and wet, but the autumn was dry and warm and very windy. The worst summer since 1879.

EAST LAYTON [DARLINGTON].—1888 may fairly be described as a year without a summer. The hay and corn harvests were bad from want of sun. A sunless and honeyless year.

FORCETT PARK.—A dull summer with very little sunshine, and July a cold wet month. October a dry month, November very wet and very stormy.

DIVISION X.—NORTHERN COUNTIES.

DARLINGTON, CLEVELAND PARADE.—Another dry year, four months in which the R did not amount to 1 in., but still a total, 2·50 in. in excess of 1887.

BARNARD CASTLE, WHORLTON.—Unseasonable. Wet in the summer and dry in the winter.

SHOTLEY BRIDGE.—The summer generally was cold, dull, and foggy.

CHESTER-LE-STREET, BIRTLEY.—R 1·43 in. below the average of 14 years, falling on an average number of rainy days.

SUNDERLAND, WEST HENDON HOUSE.—Total R ·78 in. above the 18 years' average. There were five remarkable monthly sums, two of excess and three of defect, four of them quite exceptional. March and July were the wettest months of those names recorded from 1860—

		AVERAGE.		MAX. PREVIOUSLY.	
		1888.	1860-77.	Amount	Year.
March	5·02 in.	...	1·75 in.	...	3·39 in. ... 1862
July	6·54 in.	...	2·40 in.	...	4·88 in. ... 1886

and November has only been exceeded three times. On the other hand, May and October were the driest months of the same names, and December has only had a less rain twice.

		AVERAGE.		MIN. PREVIOUSLY.	
		1888.	1860-77.	Amount.	Year.
May	·56 in.	...	1·95 in.	...	·72 in. ... 1884
October.....	·60 in.	...	2·61 in.	...	·76 in. ... 1879

Only in one year, viz., 1877, has the total to the end of July been as much as this year's, 17·96 in. The duration of R (or S) in March reached the extraordinary total of at least 230 hours. The maximum depth of S, both for the year and the winter 1887-8, was 9 in. on March 15th after the great S storm, and this is the latest date recorded for a great fall of S. Considering the eight principal points of the compass, there was an excess of hours during which the winds blew from N.W., N., N.E., and E.; very marked for N.E., and a defect in duration for the other points, especially for S. The distribution of R under the winds, relatively to their duration, was not much different from usual, though the fall was relatively greatest with the S.E. wind. The most remarkable feature of the weather was the abnormal distribution of temp., cold weather occurring when we expected warm, and *vice versa*. There was, therefore, an absence of any great heat or cold. July and March were very remarkable for the amount of cloud, September and October for the number of days on which there was an alternation of land and sea breezes, and November for gales.

BINGFIELD HOUSE.—January and February mild, the spring months very cold, summer very cold and wet, November and December mild.

ALWINTON, BIDDLESTON.—An usually cold summer and very late harvest, followed by a very fine autumn.

PAWSTON [COLDSTREAM].—The roads were blocked with S in March, somewhat as in March, 1886, but not so badly. The only severe weather was in September and October. Harvest was finished on November 9th, but in some places was still later.

WHITEHAVEN, IRISH STREET.—During the first half of the year only 10·13 in. of R fell, 8·54 in. less than the average of 12 years; the total for the year was 5·96 in. below the average.

KESWICK, SHU-LE-CROW.—The early part of the year was dry and cold. Summer came in the middle of May (the 19th being the hottest day but one in the year), but only lasted ten days, the end of May and beginning of June being cold and rainy. The end of June was fine, July cold and wet; S falling on the 11th on Skiddaw. September was very fine. The middle of October was very fine, but at the end came the greatest flood known for many years; it is said since 1827, or thereabouts. On the 28th the parish church was inaccessible, rivers and lakes were overflowing, and much land was under water. November was wet, with a smaller flood on the 25th.

December was another wet month, the R from 1st to 6th causing a great flood in the river Derwent, the road from Keswick to Portinscale being under water and impassable on foot.

COCKERMOUTH, WHINFELL HALL.—R about eight inches below the average.

COCKERMOUTH, HIGHAM.—The R up to the end of September was 1·66 in. less than to the same date in 1887.

COCKERMOUTH, BROUGHTON GRANGE.—A cold spring with little R was followed by a wet July and August.

BLENCOWE SCHOOL.—The first two months of the year were the most seasonable; March witnessed heavy S storms; April was cold and miserable; May was marked by cold nights, but sultry weather prevailed during the last few days and through June; July was unusually cold and wet. On 26th a waterspout burst and completely carried away three acres of land, together with sheep and bridges, the river being 2 ft. higher than ever before known. The latter part of August was very wet, but September was not a bad month. S fell on October 1st and 4th, but some splendid weather followed till 24th, when the weather broke, and it continued wet and mild to end of the year. R 7·00 in. below the average of 18 years.

CARLISLE, WREAY VICARAGE.—R 5·62 in. below the average of 10 years. Springs never known to fail before, dried up in April, May, and June, but were revived by the excessive R of July.

BOWNESS, FALLBARROW.—Dry up to the end of June, when a wet period set in; only 15·10 in. of R fell in the first six months.

LONGSLEDDALE.—October, November, and December were three of the wettest months known for 14 years, with great floods and tremendous winds.

AMBLESIDE, NOOK COTTAGE.—R a little below the average. The first nine months, though cloudy, with very little bright sunshine, had a R very much below the normal quantity. Of the 71·05 in. registered, 33·70 in. fell during the last ten weeks.

KIRKBY STEPHEN.—R 2·27 in. below the average of 20 years.

SHAP, COPY HILL.—R a little short of the average. The year was free from heavy gales. There was little T, and not much S.

NATLAND PARK.—In the first four months there was much cold wind from E. and N.E. The summer was wet and dull, with a touch of winter in July. The autumn and early winter were, on the whole, mild and fine, with the exception of severe frost on October 1st.

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS.

LLANFRECHFA GRANGE.—R a little below the average. Very little R in January and February, but July and November unusually wet. A cold summer.

TREDUNNOCK.—R about 2·50 in. below the average.

OYSTERMOUTH, NEWTON.—January commenced with cold fogs, hard frost about the middle, but no S till the end. Heavy S fell on February 12th, and sleet and S prevailed till April 13th, when it became mild. The remainder of April and May was dry; June, July, and August were wet; September and October dry, with no R from September 5th to 26th, or from October 8th to 22rd. November and December were very wet, with no frost to speak of.

NEATH, FAIRY LAND.—R not up to the average, the first half of the year being very dry. November had the greatest R registered in one month, viz., 9·26 in., the previous highest was October, 1886, 8·93 in.

TEGFYNYDD [NARBERTH].—The year was remarkable for the great falls of R in July and November; since 1852 no such fall has occurred in November.

HAVERFORDWEST, HIGH STREET.—January and February frosty, but fine and very dry. March a severe month with some S. April and May fine and everything looked well, but a wet and cold summer followed. September was fine but very cold. October, though the first seven days were cold and stormy, turned out fine and dry, and November and December were disastrously wet, with variable temp.

FISHGUARD, CASTLE HILL.—Cold and wet, with very little sunshine.

NEW RADNOR, DOWNTON.—The R, which is about 5 per cent. below the average, presents several remarkable features. The fall of November was exactly equal to the total for the first five months. Nearly three quarters of the total for the year fell in five months. July and November were the wettest, and September and October were the driest of the corresponding months during the five years that observations have been made. There was very nearly an absolute drought (only ·01 in. of R falling) during the 15 days, October 9th to 23rd, and only ·13 in. fell in the 23 days ending September 30th.

NEW RADNOR.—From October 24th to December 7th, 45 days, more than ·01 in. R fell each day; total for the period 11·86 in.

GLANHOWEY.—Generally wet, but no excessive fall, except July,

August, and November, and mostly mild and equable. 26 flowers in blossom on December 7th.

RHAYADER, NANTGWILLT.—R nearly 6 in. below the average 1870–79. January, February, April, May, June, September, and October had less than the average; March, July, and November much more than the average. The driest September by far during 20 years.

LLANIDLOES, BROOMCLIFFE.—Remarkable for the dryness of the first six months, during which less than one-third of the total fell. February had only .82 in., whilst July had 7.33 in. The temp. was very low during the summer, and the harvest was late.

ST. ASAPH, NANTLLYS.—The smallest R in the last 23 years, 1866–1888, yet not nearly the driest year, the rate of evaporation being very low.

CERRIG-Y-DRUIDION.—The springs were very dry at the end of May. July was very wet.

ROSSET, TREVALYN HALL.—The R was most unevenly distributed. July and November were exceedingly wet; June, August, and December had a moderate R, and all the remaining months were very dry. The total was 6.89 in. below the average of 15 years, and only .73 in. above that of 1887. July was unusually cold, the max. temp. being below 60° on eight days, and reaching 70° on only three days.

LLANFAIRFECHAN.—A wet and cold summer and a fine autumn.

LLANERCHYMEDD, LLWYDIARTH ESGOB.—R 7.94 in. below the average of 28 years, and the smallest fall in any year, except 1887. Rainy days 33 more than the average; a cold sloppy year. May and September the only months with continuous fine periods.

DOUGLAS, VICTORIA ROAD.—A very cold late spring, a cold cheerless summer, a wet gloomy (though mild) autumn. R a little below the average, and its distribution uneven; thus January, February, and September yielded only 3.65 in., while July, November, and December gave a total of 17.75 in. S fell on 16 days, but mostly in small quantities. Fair open weather prevailed through January and the first half of February, this was followed by an extremely cold period until June was well advanced. The early part of this month was more like winter than summer, the 23rd and 24th were warm, but no really summer days subsequently occurred. July was continuously wet and cold, 6.53 in. of R fell on 22 days. August was drier, but cold and ungenial. Bright, dry, but cold,

weather prevailed in September; November and December were both remarkable for high temp. and constant heavy R. In the former month gales were unusually frequent, occurring on 26 days. The temp. was persistently deficient week by week from February until November.

ST. HELIER, HASTINGS TERRACE.—The year was remarkable for the constant rains in June, July, August, and November, but May and September were remarkably fine.

SCOTLAND.

DIVISION XII.—SOUTHERN COUNTIES.

AUCHENCAIRN, TORR HOUSE.—R 12·67 in. below the average of 18 years.

DURRISDEER, DRUMLANRIG CASTLE.—Remarkable for low temp., cloud, and absence of TSS and heavy R.

ST. BOSWELL'S, ELLISTON.—A cold, wet summer, and a great R in November.

MELROSE ASYLUM.—R 1·07 in. greater than the average of six years. Wet days, two more than the average.

MELROSE, ABBEY GATE.—One of the coldest, most cheerless years ever experienced; only in the last three months was the temp. above the average. Mean of the year 2°·9 below the average. R 3·18 in. below the average.

DIVISION XIII.—SOUTH EASTERN COUNTIES.

EAST LINTON.—The year was very variable, the chief feature being the want of sunshine in July, when the total duration was only 170 hours.

EDINBURGH, BLACKET PLACE.—There were 24[·] consecutive wet days from November 12th to December 5th.

DIVISION XIV.—SOUTH WESTERN COUNTIES.

BIGGAR, CAMBUS WALLACE.—A cold and sunless year, with a little fine, warm weather in October.

BARRHILL, DOCHROYLE.—R 5·80 in. below the average of 13 years.

PINMORE.—The second lightest R in 14 years, 1887 having ·49 in.

less. October had the smallest fall for that month in 14 years. February, March, July, and September were each the coldest in 14 years, and December was the warmest in 14 years.

DIVISION XV.—WEST MIDLAND COUNTIES.

BALLACHULISH.—The first two-thirds of the year were cold and variable, the remaining third was mild but unsettled.

ISLAY, ARDBEG.—January and February had less than the average R. The summer and autumn were cold and sunless, and July and August were wet.

DIVISION XVI.—EAST MIDLAND COUNTIES.

STRATHMIGLO, LODEN URQUHART.—July was unusually cold, overcast and wet ; September unusually dry and fine ; November almost continuously wet and overcast, with a severe gale on 16th, which did considerable damage ; and December was very mild and open.

KILMANY, MOUNTQUHANIE HOUSE.—One of the latest harvests for 50 years, reaping not begun until September 26th.

CALLANDER, LENY.—There was no winter at the close of 1888, and heliotrope and dahlias died a natural death, frost not having touched them. This is a unique experience.

PERTH, HUNTINGTOWER FIELD.—The coldest summer remembered.

COUPAR ANGUS STATION.—The R of February and September was very light. The longest dry periods were two of 11 days at the end of March and beginning of April, and in the first two weeks of May. November was very wet.

ARBROATH CEMETERY.—A cold spring and summer, with a greater amount of R in July than usual. September and October were better than the summer months, but the temp. was still below the average. November and December were mild, but dull and moist.

DIVISION XVII.—NORTH EASTERN COUNTIES.

FETTERCAIRN.—Cloudy and cold without sunshine ; R below the average

ABOYNE CASTLE.—A very wet, cold year, with harvest very late, and not a single month that had not a shower of S or a frost.

ELLON, KERMUCK.—The spring months were cold and backward, and the summer was notably so. In autumn the weather was milder with high winds, and December was remarkably mild with little R.

OLD DEER.—The summer throughout was cold and sunless ; crops very late.

CRAIGELLACHIE, WESTER ELCHIES SCHOOL.—A sunless summer, harvest not finished until about the middle of November. Several inches of S on June 3rd, and frosts in August.

GORDON CASTLE.—January and the early part of February were very mild, followed by a cold, dull and sunless spring and summer. From the third week in August to the middle of October was very mild and genial, with a fair amount of sunshine. The year although dull was dry.

DIVISION XVIII.—NORTH WESTERN COUNTIES.

LOCHBROOM.—The year, on the whole, though late in spring was a very fine one, and the latter part beautiful.

DIVISION XIX.—NORTHERN COUNTIES.

GOLSPIE, DUNROBIN CASTLE.—The early part of the year was rather cold, and harvest time rather wet.

SCOURIE.—The year opened mild, and the thrush was in song for 10 to 20 days. February and March brought frost and S 3 ft. deep on the level ; April was very cold, with S, H and frost ; May cold for the first two weeks ; June, July, and the greater part of August were exceedingly and abnormally hot and dry, the crops being almost burnt up. The winter was very open and mild.

WATTEN H.R.S.—A mild, open winter, cold, wet spring, dry, cold summer, and wet autumn.

IRELAND.

DIVISION XX.—MUNSTER.

KILLARNEY, GAP OF DUNLOE.—Comparatively dry till December, except in August, when the crops were threatened, but a very fine September saved them, and all harvests of hay, turf, corn and potatoes were excellent.

CAPPOQUIN HOUSE.—A wet, damp year, the R in July doing much damage to crops.

FETHARD, {MOBARNANE.—February very unusually dry, June most unusually wet. Drought in September, and almost no rain in October till the 24th.

DERRYCASTLE [KILLALOE].—R 7·50 in. below the average of nine years, but number of wet days above the average. The spring quarter was harsh, the early summer beautifully fine; July and August were damp, but September and October were the finest harvesting months within memory; November and December were unusually wet and rough, with little frost and no S. One inch or more of R fell in 24 hours on three occasions.

NENAGH, CLASHNEVIN.—R lighter than usual, and remarkably small in February and September, but about six inches more than in 1887, and being pretty liberal in May and June, the hay and corn crops were good, but the constant wet and want of sun in July and part of August prevented the hay being well saved.

NENAGH, CASTLE LOUGH.—Total R again below the average, although distributed over 212 days. June had the largest fall for any month of the year, December coming next, and then July. The R of June and July made the outlook gloomy, but August, September and October set matters right, and, on the whole, the year was a good one. T heard only on one or two occasions, and no L seen.

O'BRIENSBRIDGE, ROSS.—There was nothing more remarkable than the unusual mildness of January and February.

BROADFORD, HURDLESTOWN.—With the exception of June and July, which were very wet, the year was very fine, and, on the whole, favourable. November was remarkable for the number of days with R. Water was very low in May and in October.

MILTOWN MALBAY.—From January to the middle of May dry, cold and frosty, thence until September 7th rainy and cold, with scarcely any sunshine; September and October, until the 23rd, were fine and dry, with plenty of sunshine. The winter months very mild, with almost continual R, but no great storms and but trivial frosts, without a flake of S.

DIVISION XXI.—LEINSTER.

GRAIGUE, BRANDONDALE.—There was an unusually heavy fall of R in June, July and August, which threatened harvest, but September was drier than for many years, and enabled corn to be got in.

LAVISTOWN.—The summer months were very wet, and disastrous for haymaking, and the corn suffered, though to a less extent.

ABBAY LEIX, BLANDSFORT.—R .56 in. below the average of 14 years.

STRAFFAN HOUSE.—September the driest month of the year, and July the wettest. A very cold summer, with many frosts both in June and July.

DUBLIN, PHENIX PARK.—R .85 in. above the average of 10 years. March was the wettest on record for that month since 1837.

BALBRIGGAN, LARAGH.—R 2.21 in. below the average of 20 years.

RAVENSDALE SCHOOL.—R about seven inches below the average.

EDGEWORTHSTOWN, CURRYGRANE HOUSE.—There were a great many wet days, though the R was not much above the average.

DIVISION XXII.—CONNAUGHT.

BALLINASLOE.—R 6 in. below the average of 16 years.

BALLINASLOE, GARBALLY.—The year was a satisfactory one to agriculturalists, and if crops suffered at all it was due more to the lowness of the temp. during June and July, than to excess of moisture.

WOODLAWN.—A dry spring, with sharp E. winds. Summer wet and cold. Autumn fine and dry. Crops well secured. Winter months very showery.

DIVISION XXIII.—ULSTER.

ENNISKILLEN, FLORENCE COURT.—Very wet throughout, with very little frost or S, and very little sunshine.

BELFAST, NEW BARNSLEY.—A very late spring; a summer of ten days in May and ten in June, but from September 6th to 29th the weather was all that could be desired.

BALLYMENA, HARRYVILLE.—A dry season, but with very few bright days and the summer months very cold. R about 4 in. below the average.

BALLYCLARE.—Much R, and very little sunshine. During dry weather it was foggy and humid, altogether unlike 1887.

MOY, DERRYGALLY.—The summer was rather wet, and not so warm as usual. The winter was rather mild, and there were few storms.

STEWARTSTOWN, THE SQUARE.—R rather below the average.

OMAGH, EDENFEL.—The year commenced with very dry and fine weather, with no frosts sufficient to interrupt farm labour, and so continued up to March 7th, when wintry weather prevailed till the end of the month. April and May were also cold. The middle fortnight of June was dry and warm and the only approach to summer weather of the year. The rest of the month, as well as July and August, were remarkable for heavy R and low temp. September and October were, however, dry and calm, followed in November and December by almost continuous gales with rain and high temp.

RAPHOE, CONVOY HOUSE.—Cloudy and dark almost throughout and a cold summer, with great R in June.

HEAVY RAINS IN SHORT PERIODS IN 1888.

THERE is a remarkable difference between these values for 1888 and those for preceding years. They are much larger. One of the records is large beyond all precedent, and we therefore set out the details exactly as reported by the observer :—

March 24th.—*Chepstow, Shirenewton Hall* (XI). S storm, with extraordinary flakes ; some were $3\frac{3}{4}$ in. in diameter, yet only $\frac{1}{4}$ in. thick, falling like plates. The storm only lasted two minutes, but in this short period the ground was covered 2 in. deep. It only required 6 in. of this snow to yield 1·00 in. of water.—E. J. LOWE, F.R.S.

Evidently if six inches yielded one inch of water, two inches would yield 0·13 in., and this is stated to have fallen in two minutes—that is, of course, 0·165 in. per minute, or nearly ten inches per hour—and had the snow continued, it is further obvious that five feet of snow would have fallen in one hour. It was certainly the most marvellous fall of which we ever heard.

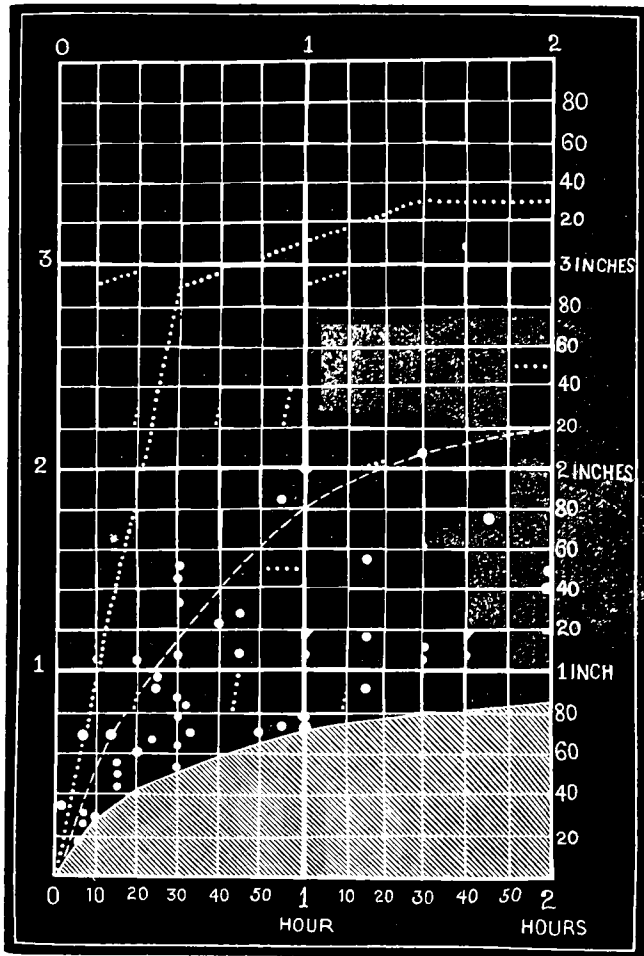
The list is by far the longest we have had for many years, and all the values marked with a star * are exceptional ; but these have already been dealt with in the special article on intense rains in the early part of this volume.

The difference between the character of this table for 1887 and 1888 is plainly proved by comparing the diagram on the next page with that given on p. [134] of *British Rainfall*, 1887. It is, however, to be remembered that two causes might increase this table (1), a greater prevalence of intense rains, (2) greater attention to the subject on the part of observers. I believe that almost all is due to the first reason, but the proof of that will probably be afforded when we come to deal with the maximum falls for the year. And these will prove another point, viz., that this table does not contain *all* the intense falls of the year. All observers do not watch their gauges closely ; some think that by emptying them daily at 9 a.m., and recording the amount to the previous day, they have done all that is expected. They ignore

Rule XIV.—HEAVY RAINS.—When very heavy rains occur, it is desirable to measure immediately on their termina-

tion, and it will be found a safe plan after measuring to return the water to the gauge, so that the morning registration will not be interfered with. Of course if there is the slightest doubt as to the gauge holding all that falls, the water must be thrown away, the amount being duly written down.

If this rule had been obeyed, the great rains in Essex and other parts of the south-east of England at the end of July and the beginning of August, would have been more prominent in the following table than they are. But I at once admit that it requires both health and courage to get up at 3 a.m. when one's garden is all flooded, and torrents of rain are falling, and go and put a fresh receptacle into the gauge, bringing in the previous one for measurement.



Heavy Falls in Short Periods in 1888.

Date.	Div.	Station.	Amount.	Duration.	Rate per hour.
			in.	hr. min.	in.
Mar. 24 ...	XI.	Chepstow, Shirenewton	·33	... 2	9·90 *
April 18 ...	I.	Camden Square	·18	... 6	1·08
Aug. 21 ...	VIII.	Chelford, Astle Hall	·63	... 7	5·40 *
July 17 ...	I.	Camden Square ..	·29	... 7	2·46
Aug. 26 ...	XII.	Melrose, Abbey Gate.....	·27	... 7	2·31
June 13 ...	IX.	Thixendale	·28	... 10	1·68
„ 25 ...	XI.	Dowlais, Cwm Bargoed	·66	... 15	2·64
May 21 ...	IV.	Upminster Hall	·54	... 15	2·16
June 26 ...	XXIII.	Buncrana	·54	... 15?	2·16?
„ 25 ...	XI.	Nanthir, Aberdare	·52	... 15	2·08
July 5 ...	I.	Lansdowne Crescent, W.	·45	... 15	1·80
June 25 ...	III.	Ely, Stretham	1·05	... 20	3·15 *
July 22 ...	X.	Bamburgh	·60	... 20	1·80
„ 24 ...	XVIII.	Drumnadrochit	·53	... 20	1·59
„ 25 ...	X.	Shap, Copy Hill	·65	... 23	1·70
„ 30 ...	II.	Kenley, Ingleside	·97	... 25	2·33
June 21 ...	III.	Oxford, Elsfield	·95	... 25	2·28
Sep. 24 ...	IV.	Lavenham Hall	1·50?	... 30?	3·00? *
July 6 ...	V.	Babbacombe	1·47	... 30	2·94 *
June 25 ...	XI.	Dennel Hill, Chepstow ..	1·35?	... 30	2·70? *
July 30 ...	IV.	Upminster Hall	1·07	... 30	2·14
Nov. 26 ...	II.	Hythe	·86	... 30?	1·72?
June 9 ...	VIII.	Macclesfield	·78	... 30	1·56
„ 25 ...	III.	Bloxham Grove	·61	... 30?	1·22?
July 19 ...	I.	Finchley, Etchingham Park ...	·54	... 30	1·08
June 25 ...	II.	Liphook, White Hill Chase ...	·84	... 31	1·63
Aug. 20 ...	XXI.	Edgeworthstown, Currygrane.	·70	... 33	1·27
July 5 ...	XI.	Ystalyfera, Tan-yr-allt	1·63	... 40	2·45 *
June 9 ...	XII.	Langholm	1·21	... 40	1·81
„ 26 ...	I.	Hendon	1·25	... 45	1·67
Sep. 11 ...	II.	Lower Walmer	1·08	... 45	1·44
July 18 ...	II.	Farnham, Bourne Vicarage.....	·72	... 50	·86
„ 30 ...	IV.	Long Stratton	1·83	... 55	2·00 *
„ 30 ...	II.	Keston, Bradfield	·74	... 55	·81
June 26 ...	IV.	Chelmsford, Roxwell	1·09	... 58	1·13
„ 26 ...	II.	Sevenoaks, Purleigh ...	2·00?	1 ...	2·00? *
„ 26 ...	II.	Greenwich Observatory	·93	1 ...	·93
July 30 ...	III.	Great Marlow	·91	1 ...	·91
Aug. 1 ...	II.	Keston Tower	·90	1 ...	·90
July 24 ...	XVIII.	Ardkenneth	·77	1 ...	·77
Nov. 27 ...	II.	Edenbridge, Falconhurst	·75	1 ...	·75
July 25 ...	IX.	Ingleton, Halsteads ...	1·53	1 15	1·22
June 26 ...	II.	Maresfield, Forest Lodge	1·19?	1 15	·95?
July 30 ...	IV.	Diss	·91	1 15	·73
„ 17 ...	XI.	Dowlais, Cwm Bargoed	2·09	1 30	1·39
„ 16 ...	V.	Bishop's Lydeard	1·60	1 30	1·07
„ 1 ...	XI.	Ystalyfera, Tan-yr-allt	1·55	1 30	1·04
„ 30 ...	IV.	Aylsham ..	3·09	1 40	1·85 *

Date.	Div.	Station.	Amount.	Duration.		Rate per hour.
				hr.	min.	
Aug. 28 ..	VI.	Worcester, Hawford Lodge ...	1·76	1	45 ?	1·01 ?
„ 1 ...	II.	Sandhurst Rectory	3·00	2	...	1·50 *
July 16 ...	VIII.	Warrington, Hill Cliffe	1·50	2	...	·75
„ 31 ...	II.	Long Wittenham	1·40	2	...	·70
„ 5 ...	IV.	Hillington	2·04	2	10	·94
„ 30 ...	II.	Little Wittenham	2·95	2	20 ?	1·26
„ 31 ...	II.	Horsley Towers	2·50	3	...	·83 ?
July 30 ...	IV.	Little Ilford	1·85	3	...	·62
Aug. 1 ...	II.	Maidstone, Mote Park	1·50	3	...	·50
„ 28 ...	XI.	Abergwessin	1·96	3	30	·56
„ 28 ...	XI.	Ednol	2·13	6	...	·36
Nov. 12 ...	XXIII.	Holywood W. W.	1·98	6	... ?	·33 ?
Aug. 28 ...	XI.	New Radnor, Downton	1·97	6	...	·33
„ 28 ...	VI.	Bromfield Vicarage	1·59	6	30	·24
„ 12 ..	XXIII.	Bushmills	1·66	8	...	·21
Nov. 12 ...	V.	Ash burton, Druid	1·76	9	...	·20

TWO HEAVY RAINS AT THE ROYAL OBSERVATORY, GREENWICH.

Rainfall by Osler's self-registering gauge, whose receiving surface is 51 feet above the ground, and 205 feet above the mean level of the sea, showing the rainfall during each hour :—

			June 26th, 1888.		July 30th, 1888.
			in.		in.
Midnight and	1 a.m.	.....	—	.....	—
1 a.m.	2 „	.....	—	.....	—
2 „	3 „	.....	—	.....	—
3 „	4 „	.....	—	.....	—
4 „	5 „	.....	—	.....	—
5 „	6 „	.....	—	.....	—
6 „	7 „	.....	—	.....	—
7 „	8 „	.....	—	.....	—
8 „	9 „	.....	·063	.....	—
9 „	10 „	.....	·028	.....	—
10 „	11 „	.....	·042	.....	—
11 „	noon	.....	—	.....	—
noon	1 p.m.	.....	—	.....	—
1 p.m.	2 „	.....	—	.....	—
2 „	3 „	.....	—	.....	·048
3 „	4 „	.....	—	.....	·242
4 „	5 „	.....	—	.....	·383
5 „	6 „	.....	—	.....	·760
6 „	7 „	.....	·049	.....	·790
7 „	8 „	.....	·931	.....	·121
8 „	9 „	.....	·212	.....	·004
9 „	10 „	.....	·041	.....	·002
10 „	11 „	.....	·067	.....	·018
11 „	midnight	.....	·026	.....	·012
Total .....		.....	1·459	.....	2·380

Rainfall by standard gauge, whose receiving surface is 5 inches above the ground, and 155 feet above the mean level of the sea :—

1888, June 26 = 1·703 inches.

July 30 = 2·491 inches.

WILLIAM ELLIS,
(For the Astronomer Royal.)

May 7th, 1889.

HEAVY FALLS IN 24 HOURS DURING 1888

WE commence this article with a definition, because it is only by adhering rigidly to rules that rain, which varies in so many ways, can be properly dealt with. Very often these rules become annoying, and sometimes they even have to be suspended, in order to permit some question to be investigated ; but the longer I work at rainfall the more am I convinced that it is only by rigid uniformity of practice that the best results can be obtained.

From the above heading some persons may conclude that in this article I deal with the fall of rain in any consecutive 24 hours during 1888, but this is not the case. I did think of changing the title to "Heavy Falls in Single Rainfall Days during 1888," but there are two objections to altering it ; (1) the old title has stood so long that it would cause inconvenience to omit it, and (2) the new one, though accurate, would not be so readily understood. It will, therefore, probably be sufficient to point out the difference between what is implied by the two titles, and what it is with which in this (as in all previous volumes) we have to deal.

"*Heavy Falls in 24 hours*" might imply total fall between, say 5 p.m. on one day and 5 p.m. on the next, or midnight of one day and midnight of the next.

Heavy Falls in single rainfall days implies total fall between 9 a.m. one day and 9 a.m. on the next.

The former can be determined at observatories provided with self-recording gauges, and *occasionally* by private observers taking extra readings of their gauges, but I doubt if twenty accurate determinations of this kind were ever made in one year ; and as a rain storm travels across the country, the period would be different for each station.

The latter values, the falls in a single rainfall day, are of course to be numbered by hundreds of thousands in each year. I suppose

that I have been favoured with quite 1,500 perfect records of the fall on each individual rainfall day during 1888, and if we suppose that the average number of days with rain was 170, there must then be 255,000 entries of the fall in true rainfall days, *i.e.*, 9 a.m. to 9 a.m., during 1888. This is safe and abundant material to work upon—this is what I always have used, and what, until something better is suggested, I intend to continue to use. But I have rather more even than this, because there are a few hundred observers who, though they do not send up the fall on every individual day, report the largest daily fall in each month and its date.

Again, it is evident that although as actual volume of water a fall of say 3 in. is of equal importance wherever it falls, it is more noteworthy and unusual at a very dry than at a very wet place. Three inches in Essex would be, perhaps, an eighth of the whole yearly fall, but three inches on the Styx would be probably less than one-fiftieth, or, to put it in time, a fall of three inches in Essex would represent the usual supply of *six weeks*, and on the Styx the usual supply of *six days*. It is, therefore, necessary to consider, not merely the actual greatest fall, but also the relation which it bears to the total yearly fall at the place where it was observed.

For this purpose we extract not merely the greatest daily fall and the date on which it occurred, but we also calculate what proportion it bore to the total fall during the year, and it is nearly two thousand such entries and calculations which form the basis of this section of the volume.

It may give some notion of the unseen work which has to be done in order to prepare *British Rainfall*, if I mention that, were these tables printed *in extenso*, they alone would occupy 33 pages of this volume. As, however, to print all these would be very costly, I have, for many years past, dealt with them in two forms. I have selected the most important cases, and printed enough to give a general idea of the great rains of the year; this I have called Part I. Chronicle, and then in Part II., I have given a series of tables, in which the whole 1,900 or more records are worked up, and this is appropriately designated by the single word, Abstract.

PART I.—CHRONICLE.

As we have just remarked, rules and system are indispensable, and yet circumstances are often too strong for them. That was the case in preparing this section for 1887, and from an opposite cause is so also

for 1888. It has been our practice for many years, but subject to occasional modification, to set out in this section all records of two inches and upwards, or of six per cent. of the yearly total, falling in the rainfall day. But, in so dry a year as 1887, the percentages were of course unusually high, and though the limit was raised from six to seven per cent., still some quite insignificant rains had to be recorded. This year the difficulty is of the other kind. There are nearly 400 stations at which the max. fall exceeded two inches, and we cannot afford to print them all.

The following little table shows very clearly the contrast in this respect between 1887 and 1888 :—

Year.	Total number of records.		Falls of 2·00in. or more.		Falls of 3·00in. or more.	
			Number.	Per cent. of total No.	Number.	Per cent. of total No.
1882		1463	.....	140	.....	9·6
1883		1505	.....	170	.....	11·3
1884		1691	.....	138	.....	8·2
1885		1801	.....	179	.....	10·0
1886		1718	.....	158	.....	9·2
1887		1921	.....	52	.....	2·7
1888		1974	.....	374	.....	18·9

This shows that there have been in 1888 more records of two inches and upwards, than in any *two* of the previous six years.

We therefore shall be guided by the characteristics of each day, as we come to it, and try to set out the leading features without adopting any definite limit.

JANUARY 3RD.

Heavy rains in the south of Ireland and extending to Scotland ; the fall in the south of Ireland was generally between 2 and 2·50 in., and was largest at—

XX.	Derreen	3·03 in.	or 4·5 per cent.
„	Glenam [Clonmel].....	2·85 „	5·9 „

In Scotland the heaviest recorded fall was—

XV.	Ballachulish	3·00 in.	or 3·9 per cent.
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MAY 29TH.

This rain occurred over a somewhat similar area, but more in the north of Ireland than the south. The amounts were mostly about two inches, and the most noteworthy, as well as typical, ones as to the locality of the fall are—

XV.	Largs, Mansfield	2·58 in.	or 4·1 per cent.
XXIII.	Stewartstown, Ardtrea	2·14 „	6·3 „

JUNE 25TH.

A sharp TS with H occurred on this day, chiefly in Surrey, where much glass was broken.

II. Havant, Farlington 2·15 in. or 8·0 per cent.

JUNE 26TH.

TSS in various parts of the S.E. of England. The following are noteworthy entries—

II.	Sevenoaks, River Hill	2·50 in.	or 8·1 per cent.
"	" Riverhead	1·98 "	6·4 "
"	" Clare Bank.....	1·98 "	6·2 "
"	Reigate, Dover's Lodge	2·30 "	7·7 "
"	" Woodhatch Lodge	1·69 "	5·6 "
"	Blackheath Park	2·07 "	8·0 "
"	Crossness.....	2·06 "	8·2 "
III.	St. Albans, The Grange	2·40 "	8·6 "
"	" Torrington House.....	2·28 "	8·4 "
"	Harpenden, Rothamstead	3·24 "	11·8 "
"	Ware, Fanham's Hall	2·00 "	8·0 "
"	Welwyn, Brocket Hall.....	1·50 "	6·0 "
"	" Danesbury.....	2·58 "	8·6 "
"	Bedford, Kimbolton Road	1·67 "	7·2 "
IV.	Little Ilford	2·04 "	7·3 "

JUNE 27TH.

A very unimportant M, chiefly in Cheshire and North Wales, but also in the north of Ireland, where the only at all important fall occurred.

XXIII. Armagh Observatory 2·23 in. or 7·4 per cent.

JULY 2ND.

The date of M at 156 stations, chiefly in Lancashire, Yorkshire, and Aberdeenshire, but with unimportant falls in other parts, for instance the Isle of Wight, Worthing, Cornwall, and the Isle of Man. The falls exceeding $2\frac{1}{2}$ in., or 7 per cent., were—

VIII.	Bury, Gin Hall	2·57 in.	or 6·9 per cent.
"	Entwistle ..	3·20 "	7·1 "
"	Blackburn, Hoddlesden	2·78 "	6·5 "
"	Whalley, Stonyhurst	2·52 "	6·0 "
"	" Earnsdale Res.	2·92 "	5·7 "
IX.	Slaidburn, Dunsop Houses	2·83 "	5·1 "
"	" Brennand	4·50 "	6·8 "
"	" Whitendale	4·57 "	6·9 "
XI.	Rhiwbrifdir	3·74 "	4·3 "
XVII.	Banff, Cullen Ho.	2·90 "	9·4 "

JULY 5TH.

Scattered M of no importance, except slight in Warwickshire.

VI.	Rugby School.....	2·33 in.	or 8·3 per cent.
"	Warwick, Priory Gardens	1·96 "	7·0 "

JULY 25TH.

This was a compact M, confined to North Yorkshire and Durham.

IX.	Ingleton Halsteads ..	3.06 in.	or 9.0 per cent.
X.	Barnard Castle, Whorlton	2.31 „	8.3 „
„	Staindrop, Raby Castle	2.74 „	10.0 „
„	Thornley	2.80 „	9.7 „
„	Durham	2.25 „	8.3 „
„	Seaham Harbour	2.28 „	8.1 „
„	„ Vicarage	2.65 „	9.8 „
„	„ Hall	3.03 „	10.0 „
„	West Hendon Ho.	2.31 „	8.6 „

JULY 27TH.

M occurred along the south and the east coasts of England and in many parts of Ireland, but were quite unimportant.

JULY 30TH AND 31ST.

The records for these days are puzzling, because all observers do not follow Rule IX., and when the storms are not clearly defined it is sometimes very difficult to assign the amounts to the proper day. Taking the figures as reported by the observers, we have for the 30th M chiefly in Surrey, Suffolk, and Norfolk, the most noteworthy being—

II.	Little Wittenham	2.95 in.	or 11.4 per cent.
IV.	Aylsham, Woodgate.....	3.09 „	11.2 „

For 31st, we have returns chiefly from the neighbourhood of Hawkhurst and Maidstone in Kent, from Hastings in Sussex, and from the Isle of Wight, but these last are unimportant.

II.	Hawkhurst, Sandhurst	3.50 in.	or 11.6 per cent.
„	Cranbrook, Swattenden	2.04 „	7.0 „
„	Maidstone, Mount Ho....	1.98 „	7.1 „
„	„ Moat Park.....	1.78 „	7.4 „
„	St. Leonards ..	2.31 „	7.2 „
„	„ The Grove.....	3.40 „	11.3 „
„	Hastings, Buckshole.....	3.40 „	10.6 „
„	„ Hollington	3.25 „	10.5 „

AUGUST 1ST.

This was the date of the great Essex fall, but though heaviest in Essex, it extended with decreasing intensity as far west as Wiltshire. The subject has already been noticed in the *Meteorological Magazine*, and therefore it will suffice to give here the most remarkable records. It may be well to add that *possibly* some of these entries belong to July 31st, but there is no clear proof that they do.

I.	Hornsey	1·74 in.	or 7·5 per cent.
II.	Chatham	2·95 „	10·5 „
„	Frindsbury, Manor Farm	1·96 „	8·2 „
„	Gravesend, Park Place.....	1·80 „	7·8 „
„	Rochester, Hoo St. Mary	1·82 „	8·3 „
„	Erith, Crossness.....	2·14 „	8·2 „
III.	Cheshunt	2·37 „	8·8 „
„	„ College	2·00 „	7·1 „
IV.	Shoeburyness	1·96 „	8·9 „
„	Southend Waterworks.....	2·84 „	11·7 „
„	„ Avenue Road	2·83 „	11·3 „
„	Romford, North Ockendon	4·56 „	+
„	„ Upminster Hall	4·50 „	+
„	Woodford, Hagger Lane	2·16 „	8·6 „
„	Brentwood, Sawyer's Hall	3·00 „	9·7 „
„	Ingatstone, Coptfold Hall.....	3·20 „	11·3 „
„	Chelmsford, Writtle.....	2·07 „	8·6 „
„	„	2·21 „	8·8 „
„	Witham, Little Braxted	2·08 „	8·3 „

AUGUST 28TH.

This was the date of *M* at 177 stations, but few of the amounts are of importance—several are indeed noteworthy for their extreme smallness. It must be very rare for a year to occur in which at many stations the greatest daily fall was less than $\frac{3}{4}$ inch. On this day there are several such cases and we quote those below ·70 in :—

I.	E. Finchley, Elmhurst.....	·67 in.	or 2·6 per cent.
II.	Benenden	·62 „	2·2 „
IV.	Norwich, Essex Street.....	·67 „	2·8 „
„	Sudbury	·62 „	2·7 „

As we have above stated, the *M* on this day were nowhere remarkable ; they were heaviest in the West Midland Counties and in Wales, but the following are the only ones of the slightest importance :—

VI.	Bridgenorth, Aldenham Park.....	2·06 in.	or 7·4 per cent.
XI.	Llanwrtyd Wells	3·15 „	5·2 „
„	Llandegley, Gwern-y-Arglwydd ...	2·85 „	7·3 „

OCTOBER 27TH.

This was the date on which many of the largest falls occurred and it was undoubtedly a very heavy rain, though as it occurred chiefly in a very wet district, the percentages are quite insignificant ; in fact, the Seathwaite *M* of 4·57 in. is actually less than the usual *M* at that station and 2·21 in. below the *M* there in 1884, viz. : 6·78 in. Still the following amounts are decidedly large :—

X.	Borrowdale, Seathwaite	4·57 in.	or 3·8 per cent.
„	Thirlmere, Wythburn	5·20 „	5·4 „
„	Borrowdale Vicarage	4·80 „	5·1 „
„	Buttermere, Hassness	4·56 „	4·8 „

X.	Borrowdale, Grange.....	4·61 in.	or 5·4 per cent.
,,	Derwentwater, Barrow Ho.....	4·00 „	5·6 „
,,	Longsleddale	3·25 „	4·9 „
,,	Ambleside, Nook Cottage	3·63 „	5·1 „
,,	„ Lesketh Howe	4·08 „	5·2 „
,,	Shap, Copy Hill.....	3·50 „	6·6 „
,,	Ullswater, Patterdale Hall.....	4·45 „	5·2 „

As this was the last of three wet days, it produced a flood of unusual volume, even for the lake district. It will be of interest to give the fall on each of the three consecutive days.

	Seathwaite.		Wythburn.		Borrowdale Vic.		Borrowdale, Grange.		Butternere, Hassness.		Barrow House.		Keswick P. O.
	in.		in.		in.		in.		in.		in.		in.
25th.....	1·50	...	1·94	...	1·46	...	1·55	...	1·85	...	1·29	...	·87
26th.....	3·56	...	3·78	...	3·38	...	3·15	...	3·21	...	2·35	...	1·22
27th.....	4·57	...	5·20	...	4·80	...	4·61	...	4·56	...	4·00	...	2·41
Total ...	9·63	...	10·92	...	9·64	...	9·31	...	9·62	...	7·64	...	4·50

NOVEMBER 2ND.

A widespread M, occurring for example at Penzance and Canterbury, Hitchin and Gloucester, Leeds and Edinburgh, but not important anywhere. The most noteworthy are—

X.	Shotley Bridge	2·37 in.	or 6·4 per cent.
,,	Meldon Park.....	2·22 „	7·4 „

NOVEMBER 12TH.

This was the day of M at more stations (221) than any other during the year. It prevailed chiefly over the south and west of England and the south of Wales, but there were few important falls ; the following are the only noteworthy ones :—

V.	Wareham, Castle Gardens.....	2·25 in.	or 7·0 per cent.
,,	Little Bredy ..	2·78 „	6·9 „
,,	Maiden Newton, Cattistock	2·41 „	5·9 „
,,	Hazelbury Bryan	3·72 „	7·4 „
,,	Blandford, Whatcombe	2·30 „	5·5 „
,,	Christow, Torquay W.W.	2·52 „	5·5 „
,,	Exeter, Manstön Terrace	2·35 „	6·9 „
,,	„ Brampford Speke	2·52 „	7·0 „

NOVEMBER 15TH.

There were very few M on this day and nearly all were in the N. and E. of Scotland ; the only remarkable one was—

XVI.	Dundee, Camperdown Jute Works.	2·69 in.	or 10·4 per cent.
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NOVEMBER 21st.

The M in the north-west of Scotland, but not a great one.

XVIII.	Glencarron Lodge	3·80 in.	or 4·7 per cent.
„	Glenfinnan	2·81 „	2·8 „

DECEMBER 27th.

The M at 149 stations chiefly in the west of England and in Wales, but reaching Northeastward to a few stations near York and Hull. The percentages were rather larger in Derbyshire than elsewhere, but were not important even there.

PART II.—ABSTRACT.

We may begin by recommending the study of Table I. to any of our readers who thinks that a gauge, which will hold three or four inches, is large enough for anyone. And we may *en passant* remark that, inasmuch as gauges which run over cannot be used in this table, there are two records—one of 4·56 in. and one of 4·50 in.—left out because we do not know how much more than those amounts fell. As these entries have been dealt with under their respective dates in the “Chronicle,” we may pass directly to Table II., which shows that these maxima are unusually, and, with but one exception, 1875, unprecedentedly large.

There is a curious fact in connection with Table III., which contains, as usual, the sixteen stations at which the fall on some one day bore a larger proportion to the entire yearly fall than at any other stations in the British Isles—the max. percentages; it will be seen that, with only two exceptions, they all occurred within a week. The exceptions are the absolute max. percentages at Rothamstead on June 26th, and that at the Camperdown Jute Works, Dundee, on November 15th. All the others occurred between July 25th and August 1st, both inclusive.

The percentages are very high, their average having been surpassed in only two years out of 23. It will be seen by referring to Table IV., that they are more uniformly high than usual, as the absolute max. percentage (11·8 per cent. at Rothamstead) is only just the average.

We now pass to the epitome of all—Table V., and it, at first sight, presents an anomaly. We have seen that both the maximum falls

and the maximum percentages in 1888 were considerably greater than usual. One would naturally expect that Table V. would be consistent therewith, and would show for all stations amounts and percentages above the mean, but the percentages are only just the average and the amounts are slightly less than usual. Now for the explanation. The rains which gave these large amounts and large percentages were local rather than general, and over large areas of country there was a marked absence of heavy rain. Scores, perhaps we might say hundreds, of stations had not, during the whole year, a single day on which an inch of rain fell, and it is these very low values which, when we come to deal with the whole 1974 returns, have neutralized the high values reported from other localities.

TABLE I.—*Maximum Falls in 1888.*

Date.	Div.	Station.	Depth.	Per Cent.	Fall in year.
Oct. 27 ...	X.	Wythburn Vicarage.....	5·20in.	5·4	96·64 in.
„ 27 ...	„	Borrowdale Vicarage	4·80 „	5·0	95·32 „
„ 27 ...	„	„ Grange	4·61 „	5·4	84·83 „
July 2 ...	IX.	Slaidburn, Whitendale	4·57 „	6·9	66·26 „
Oct. 27 ...	X.	Borrowdale Seathwaite	4·57 „	3·8	119·89 „
„ 27 ...	„	Buttermere, Hassness	4·56 „	4·8	96·04 „
July 2 ...	IX.	Slaidburn, Brennand	4·50 „	6·8	66·25 „
Oct. 27 ...	X.	Ullswater, Patterdale	4·45 „	5·2	85·38 „
„ 27 ...	„	Ambleside, Lesketh Howe...	4·08 „	5·2	79·00 „
„ 27 ...	„	Derwentwater, Barrow House	4·00 „	5·7	70·76 „
Nov. 21 ...	XVIII.	Glencarron Lodge	3·80 „	4·7	80·80 „
July 2 ...	XI.	Rhiwbrifdir	3·74 „	4·3	86·16 „
Nov. 13 ...	V.	Blandford, Hazelbury Bryan	3·72 „	7·4	50·07 „
Oct. 27 ...	X.	Ambleside, Nook Cottage ...	3·63 „	5·1	71·05 „
July 31 ..	II.	Hawkhurst, Sandhurst	3·50 „	11·6	30·23 „
Oct. 27 ..	X.	Shap, Copy Hill	3·50 „	6·6	52·80 „

TABLE II.—*Comparison of Maximum Falls with those in previous years.*

MEAN.				ABSOLUTE.			
Years.	Depth.	Per Cent.	Mean total fall at these stations.	Depth.	Per Cent.	Station.	Division.
	in.		in.	in.			
1865 ...	3·67	6·4	61·8	6·41	5·5	Seathwaite.....	X.
1866 ...	3·40	—4·4	86·2	6·38	3·6	Seathwaite.....	„
1867 ...	3·17	9·0	42·5	4·78	17·7	Hartlip	II.
1868 ...	3·32	6·1	65·9	5·60	4·8	Camusinas.....	XV.
1869 ...	3·68	5·0	77·7	6·70	4·5	Seathwaite.....	X.
1870 ...	3·20	7·5	43·8	6·00	17·1	Tongue	XIX.
1871 ...	3·08	5·7	61·6	4·24	9·6	Melbury.....	V.
1872 ...	4·10	6·6	73·1	5·82	3·2	Seathwaite.....	X.
1873 ...	2·97	6·2	60·7	4·20	2·9	Seathwaite ...	„
1874 ...	3·96	4·6	86·5	5·32	4·4	Bryn Gwynant	XI.
1875 ...	+4·52	7·8	63·9	5·33	9·7	Newport W.W.	„
1876 ...	3·37	5·9	57·6	4·50	5·5	Foffany	XXIII.
1877 ...	3·77	4·6	+93·4	4·98	5·3	Skye, Portree..	XVIII.
1878 ...	3·57	7·4	57·2	4·24	8·6	Springfield ...	XI.
1879 ...	3·66	+9·5	50·4	—4·05	4·1	Little Langdale	X.
1880 ...	3·50	7·7	51·1	4·75	3·9	Seathwaite.....	„
1881 ...	3·65	4·9	83·1	5·42	4·7	Sligachan ...	XVIII.
1882 ...	3·28	4·5	84·3	4·51	3·0	Seathwaite ...	X.
1883 ...	3·69	6·1	72·4	5·27	9·0	Glenesmoel ...	XXI.
1884 ...	3·45	4·7	80·7	+6·78	5·0	Seathwaite ...	X.
1885 ...	3·45	5·8	68·2	4·62	3·2	Seathwaite ...	„
1886 ...	3·77	7·7	58·7	4·20	9·9	Little Bredy ...	V.
1887 ...	—2·83	6·1	56·8	4·93	13·0	Galway	XXII.
Mean ...	3·52	6·3	66·8	5·17	6·9	.....	...
1888 ...	4·20	5·9	77·0	5·20	5·4	Wythburn Vic..	X.
Diff. ...	+·68	—·4	+10·2	+·03	—1·5	.....	...

TABLE III.—*Maximum Per Centages in 1888.*

Date.	Div.	Station.	Per Cent.	Depth.	Fall in year
June 26 ...	III.	Harpenden, Rothamstead ...	11·8	3·24 in.	27·48 in.
Aug. 1 ...	IV.	Southend, Water Works.....	11·7	2·84 „	24·16 „
July 31 ...	II.	Hawkhurst, Sandhurst	11·6	3·50 „	30·23 „
„ 30 ...	II.	Little Wittenham	11·4	2·95 „	25·95 „
Aug. 1 ...	IV.	Southend, Avenue Road.....	11·3	2·83 „	25·10 „
„ 1 ...	„	Ingatestone, Coptfold Hall..	11·3	3·20 „	28·36 „
July 31 ...	II.	St. Leonards, The Grove.....	11·3	3·40 „	30·71 „
„ 30 ...	IV.	Aylsham, Woodgate	11·2	3·09 „	27·59 „
„ 31 ...	II.	Hastings, Buckshole ..	10·6	3·40 „	32·19 „
„ 31 ...	„	„ Hollington	10·5	3·25 „	30·94 „
Aug. 1 ...	„	Chatham	10·5	2·95 „	27·96 „
Nov. 15 ...	XVI.	Dundee, Camperdown.....	10·4	2·69 „	25·84 „
July 25 ...	X.	Raby Castle	10·0	2·74 „	27·25 „
„ 25 ...	„	Seaham Hall.....	10·0	3·03 „	30·31 „
„ 25 ...	„	„ Vicarage	9·8	2·65 „	27·01 „
Aug. 1 ...	V.	Brentwood, Sawyer's Hall ..	9·7	3·00 „	30·83 „

TABLE IV.—*Comparison of Maximum Per Centages with those in previous years.*

MEAN.				ABSOLUTE.			
Years.	Per Cent.	Depth.	Mean total fall at these Stations.	Per Cent.	Depth.	Station.	Division.
		in.	in.		in.		
1865 ...	9·9	2·62	28·4	13·0	4·40	Fleckney.....	VII.
1866 ...	8·1	2·31	29·3	10·0	2·48	Burton	VI.
1867 ...	11·0	2·85	25·3	+17·7	4·78	Hartlip	II.
1868 ...	8·6	2·55	30·1	11·0	4·00	Tongue	XIX.
1869 ...	7·9	2·17	27·9	10·0	3·40	Tillydesk	XVII.
1870 ...	10·0	2·34	22·9	17·1	6·00	Tongue ...	XIX.
1871 ...	9·0	2·43	26·8	11·5	3·62	Warter	IX.
1872 ...	8·1	3·43	+42·5	10·0	3·70	Hillington Hall	IV.
1873 ...	9·7	2·39	24·7	11·8	2·77	Oscott ..	VI.
1874 ...	9·2	2·16	23·7	11·9	2·50	Welwyn.. [Hall	III.
1875 ...	10·2	+3·76	37·5	13·2	3·95	Letheringsett ...	IV.
1876 ...	— 7·4	2·49	33·7	— 8·5	3·70	Cragside	X.
1877 ...	8·2	2·73	33·1	9·3	3·09	Wellington.....	VI.
1878 ...	10·2	3·05	30·0	11·8	3·90	Haverstock Hill	I.
1879 ...	10·9	3·31	30·5	12·3	3·80	CambridgeM. V.	III.
1880 ...	9·5	3·06	32·3	11·7	3·34	Marmont Pr. L.	„
1881 ...	8·1	2·42	30·3	10·6	3·20	Aboyne Castle..	XVII.
1882 ...	7·7	2·54	33·4	9·1	2·80	Bothalhaugh ...	X.
1883 ...	9·7	3·00	31·1	12·3	4·31	Skegness.....	VII.
1884 ...	+11·7	2·33	—20·0	13·8	2·66	Diss(Thelveton)	IV.
1885 ...	8·9	2·71	30·7	9·6	2·62	Beccles, Ellough	„
1886 ...	10·1	3·32	32·7	11·5	4·10	Methley Park...	IX.
1887 ...	9·5	—2·11	21·9	13·0	4·93	Galway	XXII.
Mean ...	9·3	2·70	29·5	11·8	3·65	.....	...
1888 ...	10·9	3·05	28·3	11·8	3·24	Rothamstead ...	III.
Diff. ...	+ 1·6	+ ·35	— 1·2	·0	— ·41	.....	...

TABLE V.—*Comparison of the Mean of all the Maximum Falls of 1888 with similar data for previous years.*

Years.	Number of Returns.	Mean Percentage.	Mean Amount.	Mean Total Fall in year.	Ratio taking 34=100.	Total Fall being assumed =34in. Mean Max. =
			in.	in.		
1865.....	481	+ 5.1	1.70	33	97	5.0 per cent
1866.....	590	3.7	1.48	40	118	4.4 „
1867.....	584	4.6	1.44	31	91	4.2 „
1868.....	676	4.3	1.43	33	97	4.2 „
1869.....	637	4.2	1.42	34	100	4.2 „
1870.....	687	4.9	1.30	27	79	3.8 „
1871.....	752	4.9	1.49	30	88	4.4 „
1872.....	743	- 3.4	1.59	+ 47	+ 138	4.7 „
1873.....	809	4.6	1.35	29	85	4.0 „
1874.....	1010	4.4	1.41	32	94	4.1 „
1875.....	1081	5.0	+1.83	37	109	+5.4 „
1876.....	1112	3.9	1.49	38	112	4.4 „
1877.....	1180	3.8	1.56	41	121	4.6 „
1878.....	1186	4.3	1.49	35	103	4.4 „
1879.....	978	4.2	1.52	36	106	4.5 „
1880.....	1117	4.8	1.72	36	106	5.1 „
1881.....	1194	4.1	1.45	35	103	4.3 „
1882.....	1463	3.6	1.42	39	115	4.2 „
1883.....	1505	4.0	1.41	35	103	4.1 „
1884.....	1691	4.8	1.32	28	82	3.9 „
1885.....	1801	4.5	1.41	31	91	4.2 „
1886.....	1718	4.6	1.64	35	103	4.8 „
1887.....	1921	4.5	-1.14	- 25	- 74	-3.4 „
Mean ...	1083	4.4	1.48	34	101	4.4 „
1888.....	1974	4.4	1.41	32	94	4.2 „
Diff.....	+891	0.0	- .07	- 2	- 7	- .2 „

DROUGHTS IN 1888.

AFTER several years of experience, and the reduction and examination of a very considerable number of rainfall records from all parts of the British Isles, the following definitions of drought were adopted and printed in *British Rainfall*, 1887.

Absolute Droughts.—Periods of *more than* 14 consecutive days absolutely without rain.

Partial Droughts.—Periods of *more than* 28 consecutive days, the aggregate rainfall of which does not exceed .01 in. per diem.

Engineers' Droughts.—Periods of three or more consecutive months, the aggregate rainfall of which does not exceed half the average.

Slight alterations from the original definitions render strict comparison with the results of previous years rather difficult, but we think that no further modification will be needed, and year by year, as the tables accumulate, they will form a valuable standard of comparison.

With one exception the records used in constructing the following tables are identical with those used for 1887, but the result is notably different, and one of the most curious features of 1888 is that so few droughts occurred, although several months were remarkably dry, calling forth the following remarks:—“In several localities matters were worse in May, 1888, than in May, 1887.” “In February water had to be carted for cattle near Limerick.”

Of the 50 stations we find that only 15 recorded “absolute droughts” and only 4 “partial droughts,” while the tables sum up as follows:—

ABSOLUTE DROUGHTS.				PARTIAL DROUGHTS.			
No. of stations.	Average No.	Greatest duration.	Stations without one.	No. of stations.	Average No.	Greatest duration.	Stations without one.
50 ... 17	17 days	20 days	35	50 ... 4	42 days	50 days	46

These figures clearly show that in the dry months the rain was well distributed and did not fall in heavy showers at long intervals.

As regards the third class, *Engineers' droughts*, there is nothing to be said, for though in several instances we find a very small total fall

for two consecutive months, the third was always sufficiently wet to bring the total above the limits of the definition.

For the sake of comparison we have also calculated the droughts of 1888 under the old definition, *i.e.*, including 14 days of absolute drought and 28 of partial drought, and taking 1880—a wet year, 1887—a very dry year, and 1888—a slightly dry year, we get for the 50 stations the following remarkable results :—

ABSOLUTE DROUGHTS.					PARTIAL DROUGHTS.				
Year.	No.	Average duration.	Greatest duration.	Stations without one.	Year.	No.	Average duration.	Greatest duration.	Stations without one.
1880.	75	18 days	26 days	6	1880.	56	32 days	41 days	13
1887.	103	20 „	34 „	2	1887.	69	35 „	51 „	8
1888.	23	16 „	20 „	29	1888.	7	36 „	50 „	44

STATION & COUNTY.	ABSOLUTE DROUGHTS.			PARTIAL DROUGHTS.			
	Began.	Ended.	Last.	Began.	Ended.	Last.	Amount.
London (Camden Square), N.W.. <i>Middlesex.</i>	Oct. 13	Oct. 27	15	None			in.
Dorking (Abinger Hall) <i>Surrey.</i>	None			None			
Hythe..... <i>Kent.</i>	None			None			
Welwyn (Datchworth Rectory)... <i>Herts.</i>	None			None			
Maxey Vic. [Market Deeping] .. <i>Northampton.</i>	None			None			
Geldeston [Beccles] <i>Norfolk.</i>	None			None			
Calne (High Street)..... <i>Wilts.</i>	None			None			
Torquay (Lamorna) <i>Devon.</i>	None			None			
Bideford (Northam)... <i>Devon.</i>	None			None			
St. Austell (Trevarna) <i>Cornwall.</i>	Sept. 8	Sept. 23	16	None			
Ilminster (White Lackington) ... <i>Somerset.</i>	None			None			
Ross (The Graig) <i>Hereford.</i>	None			None			

STATION & COUNTY.	ABSOLUTE DROUGHTS.			PARTIAL DROUGHTS.			
	Began.	Ended.	Lasted.	Began.	Ended.	Lasted.	Amount.
Patshull Gardens <i>Stafford.</i>	Oct. 10	Oct. 28	19	Sept. 9	Oct. 28	50	in. 43
Market Overton <i>Rutland.</i>	None			None			
Worksop (Hodsock Priory) <i>Notts.</i>	None			None			
Chesterfield (Gas Works) <i>Derby.</i>	Oct. 6	Oct. 24	19	None			
St. Michael's-on-Wyre <i>Lancashire.</i>	Feb. 17	Mar. 3	16	None			
Thornton-in-Craven... .. <i>York W.R.</i>	None			None			
Cottingham <i>York E.R.</i>	None			Apl. 22	May 28	37	35
Darlington (South End) <i>Durham.</i>	Oct. 11	Oct. 26	16	Sep. 11	Oct. 26	46	46
Morpeth (Bothalhaugh) <i>Northumberland.</i>	Oct. 11	Oct. 26	16	None			
Pawston [Coldstream]... .. <i>Northumberland.</i>	None			None			
Blencowe School <i>Cumberland.</i>	None			None			
Chepstow (Shirenewton Hall) ... <i>Monmouth.</i>	None			None			
Haverfordwest (High Street) ... <i>Pembroke.</i>	Sep. 8	Sep. 22	15	None			
Llanidloes (Broomcliffe) <i>Montgomery.</i>	None			None			
Halkyn <i>Flint.</i>	None			None			
Ruabon (Wynnstay) <i>Denbigh.</i>	None			None			
Garlieston (Galloway House)..... <i>Wigton.</i>	Feb. 18	Mar. 5	17	None			
Cargen [Dumfries] <i>Kirkcudbright.</i>	Feb. 17 Oct. 5	Mar. 4 Oct. 24	17 20	None			
Melrose Asylum <i>Roxburgh.</i>	None			None			
Edinburgh (Blacket Place)..... <i>Edinburgh.</i>	None			None			

STATION & COUNTY.	ABSOLUTE DROUGHTS.			PARTIAL DROUGHTS.			
	Began.	Ended.	Lasted.	Began.	Ended.	Lasted.	Amount.
Old Cumnock <i>Ayr.</i>	None			None			in.
Killearn (Old Ballikinrain) <i>Stirling.</i>	June 15	July 1	17	None			
Strontian (Laudale) <i>Argyll.</i>	None			None			
Islay (Ardbeg) <i>Argyll.</i>	None			None			
Kerriemuir (Lintrathen)..... <i>Forfar.</i>	None			None			
Midmar (Dun Echt Observatory) None <i>Aberdeen.</i>				None			
Alness (Ardross Castle) <i>Ross.</i>	Dec. 10	Dec. 25	16	None			
Golspie (Dunrobin Castle) <i>Sutherland.</i>	June 14	July 1	18	None			
Cork (Blackrock)..... <i>Cork.</i>	None			None			
Killarney (Woodlawn) <i>Kerry.</i>	None			None			
Portlaw (Mayfield) <i>Waterford.</i>	None			None			
Limerick (Kilcornan) <i>Limerick.</i>	Jan. 5 Feb. 19 Oct. 10	Jan. 19 Mar. 4 Oct. 24	15 15 15	None			
Bray (Fassaroe)... <i>Wicklow.</i>	None			None			
Athlone (Twyford) <i>Westmeath.</i>	None			None			
Ballinasloe (Garbally) <i>Galway.</i>	None			None			
Collooney (Markree Observatory) None <i>Sligo.</i>				None			
Belfast (Antrim Road) <i>Antrim.</i>	None			Feb. 3	Mar. 7	34	28
Stewartstown (Ardrea Rectory) None <i>Tyrone.</i>				None			

MONTHLY RAINFALL OF 1888.

Maps similar in design to the following have appeared in so many volumes, that no explanation beyond that given at the bottom of each sheet of them can be desired. We do not at present know of any method which, at a reasonable cost, would convey a better general idea of the relative wetness and dryness of the several months as compared with the average. The very solid tables on pages [119] to [125] contain the actual values for each month for 233 stations—more than three thousand entries—and as the stations have been selected with great care, the details can be found in those tables for almost any part of the British Isles.

Having, then, thus given both a graphic representation, and full statistics, of monthly rainfall, it remains only to offer a brief summary of the leading features of the fall in each month.

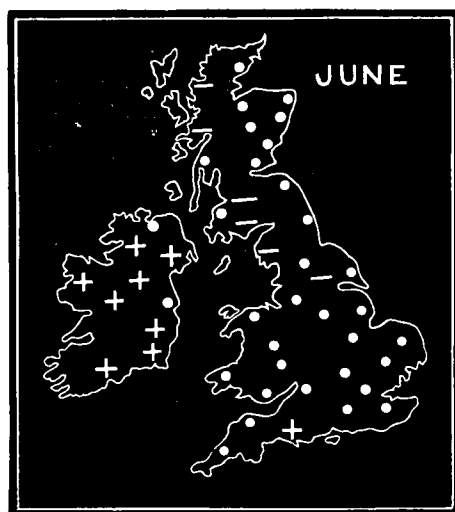
JANUARY.

A dry month over almost the whole of the British Isles, though along the Eastern coast of England and in the North of Scotland the average was nearly reached. In the S. and N.W. of Ireland, also, the deficiency was not great, though in a wide belt stretching across the country from S.W. to N.E., many stations had only about half the average. In southern and Central England, the month was remarkably dry, and we find the following statements:—Berkhamstead: "With one exception, the driest January in 33 years." Harlow, Sheering: "R little more than one-third of the average of 20 years." Babbacombe: "R only 26 per cent. of the average." Ross: "The driest January since 1859, except 1880." Coventry, Coundon: "R the smallest in January during 21 years, excepting 1880. Water supply very short." Mansfield: "R the smallest in 18 years." Speaking generally, there was little S. At very many stations fog yielded a measurable quantity of water on two or three days.

FEBRUARY.

A snowy month, but generally more on account of the frequency of the falls than of their quantity, though more than 20 inches fell

MAPS OF MONTHLY RAINFALL IN 1888.

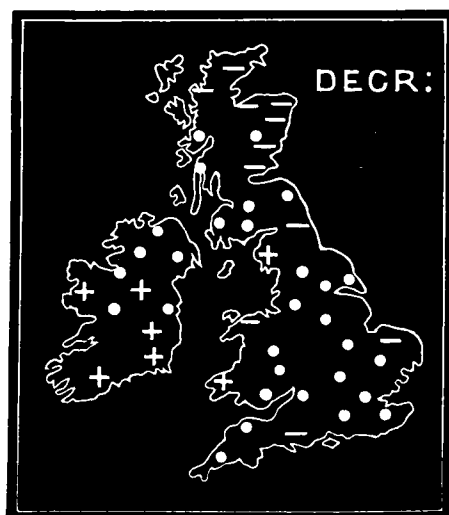
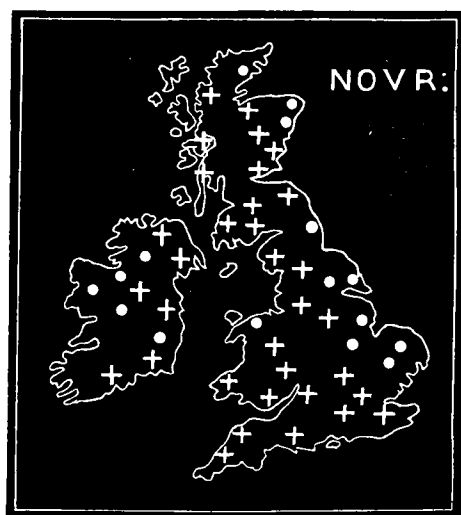
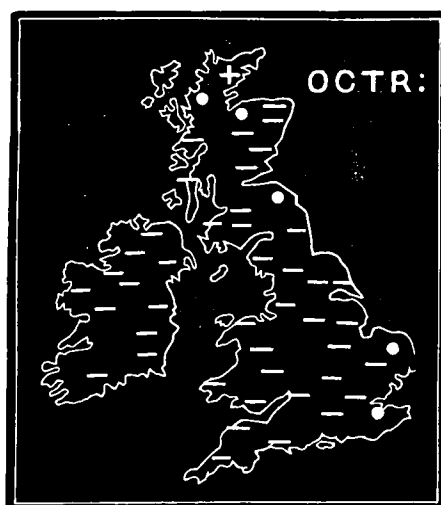


• Within an inch of average.

+ More than 1 in. above average.

— " " " below "

MAPS OF MONTHLY RAINFALL IN 1888.



• Within an inch of average.

+ More than 1 in. above average.

— " " " below "

at Oxford on 13th and 14th, and drifts occurred in many parts of the kingdom. With the exception of the S.E. of England and the extreme N. of Scotland, and also of a small district round about Oxford, the precipitation was less than the average, and though irregular, perhaps generally not more than half, while we can pick out from a hundred or so stations for which we have the values worked up, Cork with less than one-tenth; and Red Hills, Cavan, Ballinasloe and Waringstown in Ireland, Church Stretton in England, and Haverfordwest in Wales, with about one-fifth of the average. For "February fill dyke," the following remarks are very striking:—The Clive Vicarage, Shrewsbury: "The supply of rain-water in tanks as low as in the driest summer." Shap (in the Lake District): "Water getting scarce at the close." Newcastle West, Limerick: "This month necessitated drawing water for cattle."

MARCH.

Another snowy month for March, with blocks on roads and railways in the N. of England and in Scotland.

The map very clearly exhibits the distribution; a great excess in the southern half of England, where the fall at most stations reached or exceeded double the average, and where we find it recorded as the wettest March in periods ranging from 12 to 26 years. A smaller excess in the N. of England and S.E. of Scotland, a slight deficiency at some stations on the W. coast of Scotland, and a great excess at stations on the E. coast. In Ireland, the dots on the map all indicate slight excesses, while in the E., about Dublin, the fall was more than twice the average.

APRIL.

The R of this month was of a normal character, being, over the greater part of the British Isles, within about half-an-inch of the average. The fall was deficient in the S.W. of England, the S. of Ireland, and the S. of Wales. Plus signs appear on the map in Cumberland and the N.W. of Scotland, but these being wet stations, a departure from the average of an inch is quite usual. Snow fell on three or four days in many parts of the kingdom.

MAY.

A dry month over England, especially as regards number of wet days; the + at Seathwaite being a usual accompaniment of a dry month. Over the central and eastern parts of the country the fall

ranged between one-third and one-half of the average, while in the S.W. the deficiency was inconsiderable. In the lowlands of Scotland an average was maintained, while the wet stations on the west coast—like Seathwaite in England—had more than, and in one case even as much as twice, the average. In Ireland, the pluses and minuses very nearly equal each other, but leave a slight balance in favour of the pluses.

JUNE.

As far as England is concerned, June deserves a worse character than the total rainfall would indicate, for the number of wet days was great, and an exceptionally low temperature, in addition, gave the month anything but a summerlike character. The variations from the average do not exhibit a striking feature, but sum up to a slight deficiency. In Scotland, we find a considerable deficiency in the S.E. ; otherwise, in spite of the minus signs on the W. coast, the monotony of slight variations from the average is unbroken.

In Ireland, the month was everywhere wet, the average being exceeded by about 25 or 30 per cent. in the S., E., and N.E., and the excess increasing to 50 per cent. in the W. Snow fell in Cornwall on 14th, and, in considerable quantities, in the N. of Scotland at the beginning of the month. Thunderstorms and heavy hail were frequent.

JULY.

A most unsummerlike month, with an unprecedented number of wet days. Over England and Ireland the fall was almost uniformly great, though one or two stations, by missing the heavier rains, recorded little more than their average. Numerical calculation gives for England an excess of 81 per cent., for Wales of 88 per cent., and for Ireland of 72 per cent.

In Scotland the character of the R of the high and wet stations of the West was totally different from that of other parts of the country, and while we have minus signs for the former, nearly twice the average was recorded in the East.

At several high-level stations in Cumberland the fall was altogether exceptional, and one would be inclined to doubt the accuracy of the observations but for the evidence which they give in support of each other.

Div.	Station.	July total.
X.	Cheviot, Broadstruther.....	16·88 in.
„	Sprinkling Tarn	42·80 „
„	The Styne	38·50 „
„	„ New S.E. Gauge	36·20 „

These compare with—

Station.	January, 1872.	September, 1872
The Styne	50·05 in.	33·70 in.
Taylor's Gill.	42·21 „	31·03 „
Seathwaite (5 in.).....	32·14 „	20·85 „
„ (4 in.).....	31·80 „	22·62 „
Stye Head Tarn	31·52 „	26·34 „

AUGUST.

Another month with many wet days, but a very variable rainfall owing to the irregular distribution of heavy rains. Over England and Wales, as a whole, the fall nearly reached the average, though at many stations in the S.W. and W. of England, there was a considerable deficiency. Scotland was generally dry, little more than half the average falling in the S. and E., while in the W. and N. there was no great lack of R., and one plus sign appears on the map.

Round Dublin the deficiency was more than 50 per cent., but in most other parts of Ireland the average was nearly reached, while in the extreme N. there was a moderate excess.

SEPTEMBER.

A glance at the map at once shows this to have been an exceptionally dry month. Taking the representative stations on which these notes are based, we find for—

England	a	total	fall	of	41	per	cent.	of	the	average.
Wales	„	„	26	„	„	„	„	„	„	„
Scotland	„	„	37	„	„	„	„	„	„	„
Ireland	„	„	26	„	„	„	„	„	„	„
British Isles	„	„	36	„	„	„	„	„	„	„

In the S., E., and N. of England the fall ranged from about one-third, to a little more than half, the average, while over the district comprising the watershed of the Severn, it was less than one-fifth. For Wales the 26 per cent. given above, applies about equally to all parts.

In Scotland the month was even drier than in England, Loch Leven and Dundee showing respectively 12 and 14 per cent. of the average, while 50 per cent. was hardly reached anywhere but in the extreme north. Over Ireland the fall was very uniformly small, scarcely any station having less than 20 or more than 30 per cent. of the average.

OCTOBER.

A very dry month, though not so dry as September. There is a remarkable uniformity in the means for the different countries. England and Wales each 40 per cent. of the average, Scotland 45, and Ireland 46. In the S. and E. of England the deficit was about

40 per cent., in the S.W. and N. it was about 60 per cent., and over the remainder of the country 75 per cent.

In the W. and N. of Scotland the average was nearly maintained, and in the extreme N.W. there was an excess. In the S. the fall was about a quarter of the average, and in the E. from one-third to half the average.

NOVEMBER.

Wet everywhere in Great Britain, except at stations along the E. coast from the mouth of the Thames to Kinnaird Head. In the S. of England the fall was about 60 per cent. in excess, over the centre of the country and in Wales double the average. In the N. of England and in Scotland the fall was irregular, the excess being generally between 50 and 90 per cent. In Ireland the excess was greatest in the E. and S., Dublin having more than twice its average, while in the W. the excess disappears.

Exceptionally large quantities were recorded at many upland stations, though they appear almost insignificant beside the Cumberland amounts for July :—

VII.	Woodhead Station	19·02 in.
IX.	Holmbridge, Batley Waterworks	18·00 „
X.	Sprinkling Tarn.....	18·90 „
„	Stye Head Tarn	19·30 „
„	The Stye	28·80 „
„	Seathwaite	22·87 „
„	Ullscarf	23·00 „
„	Wythburn Vicarage ...	18·83 „
„	Borrowdale Vicarage	18·00 „
„	Watendlath	20·00 „
„	Lesketh Howe	15·88 „
„	Mardale	20·00 „
„	Patterdale	16·17 „
„	„ Greenside ..	17·57 „
XI.	Glyncorrwg.....	15·54 „
„	Bwlch Tomlyd	16·00 „
XV.	Benmore ...	16·25 „
XVI.	Glen Gyle	16·20 „
XVIII.	Loch Vraon.....	15·28 „
„	Ben Nevis	20·60 „

DECEMBER.

In comparison with the preceding months, December appears of a very ordinary character, and the map is a perfect guide. There was a moderate deficiency in the S.E. and E. of England amounting to about 30 per cent. in the eastern counties, while in Scotland the deficiency in the E. and N. was rather more, and the dots nearly all represent falls slightly less than the average. In Ireland the fall was about 40 per cent. above the average in the S., shading off to an excess of about 10 per cent. in the N.

MONTHLY RAINFALL AT 233 STATIONS IN THE BRITISH ISLES DURING 1888.

ENGLAND.

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
I.	Middlesex	London (Camden Sq.)	.90	.78	3.34	2.37	1.18	2.31	4.91	3.61	1.43	1.24	4.38	1.29	27.74
"	"	Uxbridge (Harefield)	.81	1.14	3.34	2.10	1.56	2.86	5.73	2.68	.66	2.08	6.20	2.23	31.39
II.	Surrey	Guildford (Guildown)	1.14	1.22	3.27	1.77	1.57	2.76	5.58	2.34	1.29	1.53	4.57	1.75	28.79
"	Kent	Tenterden	.88	2.06	4.36	1.39	1.09	2.37	5.08	1.26	1.18	2.40	4.37	1.78	28.22
"	"	Hythe	1.29	2.46	3.88	1.03	1.40	2.51	4.96	1.15	2.28	2.54	3.83	2.05	29.38
"	"	Sevenoaks (River Hill)	.84	1.51	3.21	1.71	.99	5.03	6.74	1.42	1.54	1.59	4.59	1.47	30.64
"	"	Ospringe (Lorenden)	.90	1.93	2.67	1.38	.49	2.35	4.21	1.49	.80	1.24	3.40	1.19	22.05
"	"	Worthing (Heene)	1.06	1.34	3.09	1.23	1.24	2.68	4.25	1.85	.98	2.43	4.31	1.40	25.86
"	Sussex	Maresfield (Forest Lodge)	1.06	1.48	4.14	1.58	1.36	4.02	6.44	2.28	1.02	2.34	4.52	2.40	32.64
"	"	L. of Wight (Sandown)	.94	1.01	3.94	1.25	1.67	1.78	5.48	2.47	.58	2.70	4.75	2.12	28.69
"	Hants	Bps. Waltham (Svanmore)	1.51	.95	3.60	1.90	2.29	3.31	5.48	2.72	1.42	1.90	5.13	1.99	32.20
"	"	Basingstoke (Sherborne)	.99	1.02	3.69	2.20	1.71	2.29	6.46	1.57	1.41	1.61	4.15	1.96	29.06
"	Berks	Newbury (Welford)	.89	1.77	3.69	2.53	1.64	2.21	5.07	1.99	1.56	1.55	5.60	2.46	30.96
III.	Herts	Hertford (Bayfordbury)	.75	.98	3.19	1.95	1.07	2.31	3.26	3.03	.81	1.02	4.32	.85	23.54
"	"	Royston	.66	1.25	2.59	2.02	.97	1.52	3.49	2.50	1.44	.76	3.29	1.14	21.63
"	"	Greenlands[Henley-on-Thames]	1.10	1.47	3.95	1.57	1.32	2.36	4.99	1.85	.82	1.85	6.08	1.58	28.94
"	Bucks	Buckingham (Adstock)	.77	2.72	2.77	2.03	1.37	2.01	4.55	1.99	1.10	.79	4.67	1.94	26.71
"	"	Oxford (Magdalen Coll.)	.70	3.38	2.94	1.59	1.18	3.19	4.44	1.97	1.13	.77	4.13	1.97	27.39
"	Oxford	Wellingborough(Swanspool)	1.17	2.48	2.89	1.60	1.00	1.90	4.61	2.01	1.02	.38	3.20	1.66	23.92
"	Northampton	Bedford	.73	1.57	2.79	1.42	.77	3.48	3.34	2.50	.90	.60	3.08	1.25	22.93
"	Bedford	Ely (Stretham)	.59	.89	1.74	1.49	.84	2.10	3.81	3.11	.69	.67	3.66	1.20	20.79
"	Cambridge	Wisbech	.83	2.12	2.52	1.36	.82	1.36	3.73	2.52	1.23	.50	2.72	1.42	21.13
IV.	Essex	Epping (The Hemnalls)	1.31	1.29	4.44	3.82	1.35	2.98	6.28	5.39	1.23	1.79	6.56	1.83	38.27
"	"	Chelmsford (High Street)	.92	1.66	2.79	1.68	.80	2.34	3.41	4.13	.96	1.28	3.85	1.10	24.92
"	"	Braintree (Bocking Place)	.84	1.47	3.11	2.11	.66	1.83	4.61	3.37	1.39	1.27	4.00	1.36	26.02
"	"	Ipswich (Bishop's Hill)	1.30	1.98	3.30	1.50	1.08	1.43	4.35	2.22	1.86	.96	3.84	.97	24.79
"	Suffolk	Haverhill (Great Thurlow)	.88	1.18	3.29	1.33	.93	2.17	3.75	2.70	1.17	.95	3.29	.93	22.57
"	"	Weybread Vic. [Harleston]	1.06	1.83	2.48	1.74	.93	1.33	6.73	2.05	1.19	1.12	2.79	.92	24.17
"	"	Geldeston [Beccles]	1.14	1.53	2.56	1.21	.87	.91	5.62	1.89	1.10	1.28	3.02	1.05	22.18
"	Norfolk	Swaffham Grammar School.	1.11	2.33	2.38	1.68	.95	1.02	4.32	3.50	1.21	1.08	2.75	1.16	23.49
"	"	Holt (Lethringsett Hall)	1.03	2.30	2.60	2.56	.88	1.57	4.23	3.25	2.33	1.77	2.50	1.27	26.29

ENGLAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
V.	Wilts	Salisbury (Alderbury)	1·15	1·09	3·41	1·99	2·09	2·33	5·45	1·40	1·69	1·87	5·11	2·45	30·03
"	"	Trowbridge (Steeple Ashton)	·73	1·15	3·05	1·60	1·17	3·22	3·87	1·67	1·57	1·16	4·82	2·45	26·46
"	"	Marlborough	·72	1·47	3·75	1·77	1·22	2·59	4·52	2·04	1·19	1·17	5·24	2·45	28·13
"	Dorset	Weymouth (Osmington) ..	1·69	·56	3·25	1·28	2·10	3·57	3·81	2·01	1·46	2·93	7·14	2·26	32·06
"	"	Wimborne (Chalbury)	1·35	·76	3·21	1·80	1·85	2·73	3·01	1·76	1·38	1·85	6·03	2·43	28·46
"	"	Shaftesbury	1·20	1·93	3·57	2·50	1·17	2·85	6·05	1·72	1·56	1·91	6·87	2·49	33·82
"	Devon	Brixham (Lupton)	1·12	·51	5·65	1·86	3·37	2·88	4·12	2·27	1·13	1·99	9·59	3·01	37·50
"	"	Walkhampton (Lowery) (sin.) ..	2·83	1·64	6·14	2·74	3·11	3·35	9·80	4·81	1·66	2·86	10·10	6·22	55·26
"	"	Ilminster (Middlecott Ho.) ..	1·86	·28	7·17	2·52	3·06	2·50	8·10	3·79	·91	2·24	12·23	5·59	50·25
"	"	Cullompton	1·42	·61	4·09	1·54	1·84	3·43	7·21	2·18	·90	1·37	8·68	3·32	36·59
"	"	South Molton (Rose Ash) ..	1·90	1·86	4·77	1·71	1·07	2·73	5·40	3·16	1·33	1·98	8·39	3·31	37·61
"	Cornwall	Penzance (Penlee)	2·77	1·47	4·83	1·62	1·55	3·44	5·77	3·33	1·77	3·14	8·55	4·82	43·06
"	"	St. Agnes	2·44	·81	4·61	1·67	1·86	3·04	5·17	2·40	1·85	3·09	8·61	5·18	40·73
"	"	Bude	1·65	1·32	3·59	1·29	1·21	2·05	3·86	2·32	1·60	1·84	5·57	4·50	30·80
"	Somerset	Ilminster (White Lackington) ..	1·01	·88	4·13	2·15	1·97	3·40	7·93	1·62	1·83	1·53	7·26	3·66	37·37
"	"	Glastonbury (Street)	1·41	1·47	2·81	1·50	·81	2·65	7·46	1·57	1·67	1·35	5·34	3·22	31·26
"	"	Exford Rectory	1·71	1·03	5·83	3·29	2·06	3·16	6·58	3·63	1·73	1·97	10·11	4·99	46·09
VI.	Gloucester	Clifton (South Parade) ..	1·11	1·74	3·54	1·78	1·41	4·00	6·22	2·55	1·28	1·06	6·53	3·29	34·51
"	"	Stroud (Upfield)	·69	1·65	3·70	1·92	2·00	3·27	5·91	1·82	·76	·80	6·84	3·42	32·78
"	"	Fairford (Hatherop Rec.) ..	·78	2·16	3·24	1·72	1·68	2·47	3·94	2·86	1·06	·62	5·18	2·83	28·54
"	Hereford	Ross (The Graig)	·69	1·10	3·84	1·70	1·34	2·72	6·06	2·40	·79	·91	8·17	3·29	33·01
"	Salop	Ch. Stretton (Woolstaston) ..	·76	·41	2·26	2·68	·90	2·08	4·75	4·68	·57	1·27	6·43	2·96	29·75
"	"	Much Wenlock (Willeypk.) ..	·77	·76	3·09	2·30	·74	2·23	5·28	3·66	·87	·97	5·28	2·56	28·51
"	"	Oswestry (Hengoed)	1·12	·62	1·82	1·58	1·32	3·94	5·94	3·58	·74	1·93	5·88	3·03	31·50
"	Stafford	Lichfield Museum	1·23	1·02	2·91	2·32	·61	2·10	6·39	3·56	1·07	·73	4·34	1·91	28·24
"	"	Burton (Shobnall)	·33	·46	2·26	1·55	·47	1·69	5·37	2·52	1·16	·47	3·29	1·65	21·72
"	"	Etruria	1·54	·92	2·74	1·23	·92	3·01	6·24	3·33	·73	1·19	4·41	2·43	28·69
"	Worcester	Blockley	·83	1·06	3·55	1·40	1·51	2·36	5·83	2·50	1·09	·58	7·06	2·85	30·62
"	"	Malvern (Hornvold Ter.) ..	·68	·70	3·03	1·07	1·06	2·40	5·41	1·95	·85	·52	7·53	2·68	27·88
"	"	Tenbury (Orleton)	·66	1·06	3·07	1·15	·77	3·21	5·44	2·81	·63	·68	6·48	2·84	28·80
"	"	Stourbridge (Longlands) ..	·85	·62	2·90	1·29	·71	2·15	5·10	4·00	1·29	·51	5·01	3·16	27·59
"	Warwick	Leamington (Upper Parade) ..	·64	·73	2·43	1·21	·77	1·50	6·89	1·72	·98	·57	3·74	1·72	22·90
"	"	Wiley Rectory	1·02	1·56	2·29	2·30	1·04	2·40	6·23	2·66	1·40	·74	3·40	2·20	27·24
VII.	Leicester	Loughborough (Cedar Cott.) ..	·64	1·41	2·79	2·75	·80	1·78	6·01	2·89	·96	·49	4·36	2·07	26·95
"	"	Harston [Grantham]	·46	2·39	2·54	1·76	·70	1·74	4·12	2·29	1·07	·49	3·02	1·44	22·02

ENGLAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
VII.	Rutland	Market Overton	.93	1.34	2.48	2.47	.95	2.80	4.36	1.85	1.12	.74	3.78	1.61	24.43
"	Lincoln	Horncastle (Queen Street)	.98	1.05	2.36	2.27	.93	1.65	4.79	.92	1.60	1.55	4.44	1.54	24.08
"	"	Brigg (Appleby Vic.)	.72	1.72	2.17	1.77	.64	2.41	5.34	2.63	1.51	1.06	3.03	1.81	24.81
"	Notts	Ollerton (Thoresby Gardens)	.46	1.34	2.67	1.50	.78	1.86	4.91	2.20	1.00	.57	3.81	2.44	23.54
"	Derby	Buxton	2.19	2.86	3.98	2.62	1.47	2.78	7.87	4.87	1.93	2.14	9.60	3.97	46.28
VIII.	Cheshire	Congleton (Buglawton Vic.)	1.58	1.24	2.26	1.33	.68	2.76	5.27	3.37	1.36	.96	3.85	2.18	26.84
"	Lancashire	Manchester (Withington)	1.40	1.00	1.63	1.47	.88	3.10	5.31	3.15	.91	1.50	4.42	2.17	27.00
"	"	Ormskirk (Rufford)	1.46	.73	2.93	1.09	.69	2.02	5.60	3.53	1.28	3.08	4.94	1.94	29.23
"	"	Burnley (Swinden, Lower)	2.26	1.19	3.55	2.47	1.44	3.03	5.48	3.84	1.07	2.21	8.85	3.52	38.91
"	"	St. Michael's-on-Wyre	1.49	.52	2.97	1.35	1.12	1.65	6.53	3.32	1.69	3.00	4.90	2.66	31.20
IX.	York, W.R.	Grange (Nutwood)	2.24	1.02	2.69	1.50	1.21	1.63	6.65	3.35	1.59	4.18	5.05	3.22	34.33
"	"	Rotherham (Moorgate Grove)	1.08	1.43	2.94	1.85	.62	1.77	4.60	2.30	1.16	.60	4.73	1.73	24.81
"	"	Huddersfield (Dalton)	1.16	.97	3.99	2.31	.64	2.34	4.40	2.25	.79	1.17	8.38	2.09	30.49
"	"	Leeds (Methley Park)	.58	1.73	3.31	2.12	.43	2.98	4.42	1.89	.97	.83	5.19	1.64	26.09
"	"	Malham Tarn	4.07	2.83	5.22	3.49	2.35	2.82	7.18	6.88	2.59	2.50	9.74	5.01	54.68
"	"	Ripon (Mickley)	.97	1.76	4.89	2.71	1.05	2.53	4.16	3.05	.89	.85	5.95	2.11	30.92
"	York, E.R.	Pattingham	.91	.98	2.06	1.33	.69	1.49	6.45	2.76	.88	.85	2.94	1.73	23.07
"	"	Brantinghamthorpe	.98	2.10	3.86	2.48	.62	2.32	6.26	2.28	2.09	1.35	3.95	2.25	30.54
"	"	Pocklington (Warter)	1.17	2.35	4.35	2.48	.72	3.56	5.95	3.08	1.55	1.13	3.79	1.69	31.82
"	York, N.R.	Malton	.51	1.47	3.26	1.79	.83	1.99	4.78	2.94	1.13	1.02	3.44	1.87	25.03
"	"	Northallerton (The Lodge)	.77	1.53	2.51	1.62	.59	1.71	3.76	2.06	1.43	.28	2.88	1.29	20.43
"	"	Robin Hood's Bay	.41	2.50	3.19	2.35	1.46	2.26	5.32	3.58	2.13	2.10	3.65	1.79	30.74
"	"	Lockwood Beck	1.37	2.03	3.67	2.90	.78	2.48	6.85	3.09	2.59	1.01	4.74	1.45	32.96
X.	Durham	Darlington (South End)	.66	1.37	3.63	2.47	.60	2.34	3.68	1.77	1.18	.41	3.66	.96	22.73
"	"	Hartlepool (Hurworth Burn)	1.02	1.51	4.31	2.92	.62	1.57	6.26	1.88	1.44	.58	3.64	.92	26.67
"	"	Wolsingham	1.69	1.80	5.66	2.94	1.25	2.46	5.57	1.89	1.23	1.42	7.78	1.46	35.15
"	Northumberland	Haltwhistle (Unthank Hall)	1.70	1.12	3.53	1.85	1.29	3.32	4.77	2.76	1.16	2.16	6.10	1.16	30.92
"	"	Morpeth (Meldon Park)	1.62	1.48	4.64	1.99	.66	3.04	4.63	1.93	1.33	1.03	6.46	1.20	30.06
"	"	Alwinton (Biddleston)	1.93	2.37	6.20	2.95	1.18	2.76	4.83	2.93	1.12	2.13	6.84	1.50	36.74
"	"	Howick Hall	1.24	1.28	3.18	1.48	.97	2.44	4.60	1.78	1.55	.93	4.50	1.44	25.39
"	Cumberland	Borrowdale (Seathwaite)	8.32	2.97	9.62	7.35	8.17	2.35	11.21	9.30	5.77	14.51	22.87	17.45	119.89
"	"	Brampton (Denton House)	1.38	.99	3.27	1.39	1.17	1.60	6.04	4.03	1.85	2.28	4.23	1.39	29.62
"	"	Kendal (Kent Terrace)	2.92	.95	3.42	2.25	2.41	2.35	6.26	4.16	1.61	5.81	5.54	5.36	43.04
"	Westmoreland	Kirkby Stephen	2.01	1.52	4.18	2.00	2.49	1.47	4.36	2.96	1.29	4.34	7.62	4.14	38.38
"	"	Lowther Castle	2.19	1.26	2.32	2.03	2.75	1.29	5.64	2.96	.68	2.93	6.58	5.22	35.85

MONMOUTH, WALES AND THE ISLANDS.

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XI.	Monmouth.....	Chepstow (Shirenewton Hall)	1.76	1.25	4.35	1.88	2.30	5.18	7.09	3.46	1.57	1.46	8.29	4.69	43.28
"	"	Abergavenny.....	1.10	.95	5.49	1.83	2.40	4.82	7.28	1.73	.55	1.28	10.39	5.04	42.86
"	Glamorgan.....	Cardiff Castle	1.63	.60	4.31	1.41	1.66	3.48	7.35	3.53	1.15	1.73	6.92	3.63	37.40
"	"	Ystalyfera (Tan-yr-allt) ...	2.91	1.12	6.30	2.51	2.99	5.07	10.63	6.13	2.61	3.69	10.08	8.66	62.70
"	Cardarthen	Cardarthen Asylum	2.54	.67	3.79	1.48	2.20	4.42	6.83	6.66	1.32	3.90	8.73	7.99	50.53
"	"	Llandovery	2.28	.80	4.99	2.17	1.80	4.29	6.26	6.64	1.83	3.74	8.02	7.06	49.88
"	Pembroke	Stackpole Court	2.12	1.52	2.86	1.26	1.94	3.06	6.78	4.94	1.50	2.20	9.86	5.03	43.07
"	"	Fishguard (Castle Hill) ...	2.25	1.48	3.94	2.34	1.93	3.48	5.45	3.65	.59	3.78	7.82	6.80	43.51
"	Cardigan	Aberystwith (Cwmsymlog)	2.73	2.09	3.44	4.88	1.54	4.16	7.72	6.45	2.90	4.53	6.13	4.30	50.87
"	Brecknock.....	Brecknock (Cantref Rec.)	2.03	1.04	5.94	2.49	2.42	4.36	5.81	2.91	.94	3.61	9.48	7.98	49.01
"	Radnor	Llandrindod Wells	1.55	.89	3.59	1.77	1.28	3.00	5.20	5.59	.73	2.58	7.02	4.37	37.57
"	"	Rhayader (Nantgwillt) ...	2.75	1.35	6.49	2.49	2.34	3.29	8.78	6.71	.92	4.49	11.01	8.22	58.84
"	Montgomery	Carno (Tybrith)	1.83	1.00	3.71	3.19	1.37	3.10	7.95	4.27	.57	2.90	7.46	3.74	41.09
"	Flint	St. Asaph (Nantllys)	.87	.84	1.67	1.21	.70	1.76	3.91	3.10	.88	1.61	3.75	1.30	21.60
"	Denbigh.....	Rosset (Trevalyn Hall) ...	.90	.66	1.67	1.06	.54	2.12	5.19	2.58	.69	1.13	4.24	2.04	22.82
"	Merioneth	Trawsfynydd	3.60	2.06	3.37	2.90	2.41	3.38	8.68	5.47	3.06	4.57	10.42	6.00	55.92
"	"	Corwen (Rhug Gardens) ...	1.45	1.12	2.08	1.59	1.22	2.65	6.18	2.91	.80	2.08	5.17	2.37	29.62
"	Carnarvon.....	Port Madoc	3.26	.89	2.67	3.57	1.90	3.82	7.21	6.21	3.00	4.30	5.10	4.51	48.12
"	"	Llanerchymedd (Llwydiarth	1.42	2.57	3.29	2.08	1.15	2.91	5.28	2.80	1.06	2.38	4.57	2.45	30.23
"	Anglesey	Douglas (Victoria Road)...	1.94	.63	3.41	2.83	2.09	2.33	6.53	2.89	1.04	3.12	6.11	5.11	38.03
"	Isle of Man	St. Aubins (Noirmont) ...	1.98	2.39	4.20	2.44	1.39	2.97	5.54	2.52	1.13	2.54	5.07	2.68	34.85
"	Jersey.....	Les Ruettes Brayes	2.16	2.55	4.24	1.93	1.56	3.43	3.08	2.80	1.40	4.00	6.56	2.32	36.03
"	Guernsey														

SCOTLAND.

XII.	Wigton	Garliestown (Galloway House)	3.01	1.03	2.64	1.68	2.87	2.28	4.36	2.83	1.42	1.74	5.57	4.69	34.12
"	"	Corsewall	1.67	.57	.66	.61	3.25	1.97	6.07	3.03	1.50	.96	3.87	1.28	25.44
"	Kirkcubright ...	Dalbeattie (Colvend Manse)	2.35	.54	1.92	1.80	1.34	.91	4.97	2.58	1.03	2.93	6.29	1.94	28.60
"	"	New Galloway (Glenlee)...	6.28	.52	2.85	2.82	5.32	4.10	5.69	4.72	1.64	3.70	10.19	8.74	56.57
"	Dumfries	Moffat (Ericstane)	4.65	1.20	3.90	3.30	2.60	1.90	4.10	3.90	2.00	4.00	9.40	7.10	48.05
"	Roxburgh	New Castleton (The Flatt).	2.60	1.30	4.10	2.20	1.60	2.20	4.60	4.40	1.30	5.60	6.50	5.80	42.20
"	"	Hawick (Branxholme).....	1.93	1.39	2.64	1.80	1.86	2.44	5.50	2.79	.63	2.88	5.87	3.17	32.90
"	"	Jedburgh	1.38	1.17	1.98	1.95	.98	2.65	4.83	1.90	1.12	1.69	4.26	1.59	25.50
XIII.	Peebles	Glenrath	2.63	2.65	2.87	1.94	2.59	2.48	4.01	2.77	.91	2.20	5.10	4.68	34.83
"	"	N. Esk Res. [Penicuik]...	2.95	2.65	4.90	2.10	1.35	2.05	6.25	3.05	1.15	2.15	8.60	2.00	39.20

SCOTLAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XIII.	Berwick	Marchmont House	2.00	2.19	3.87	2.85	.83	2.93	5.13	2.74	1.01	1.48	7.27	1.21	33.51
	Haddington	East Linton	.97	1.86	4.25	1.05	.50	2.37	4.67	2.33	.67	.54	5.36	.41	24.98
	Edinburgh	Edinburgh (Charlotte Sq.)	1.62	1.35	3.17	1.30	.78	2.53	5.65	1.80	.51	1.10	4.20	.85	24.86
	Linlithgow	Uphall	1.72	.97	2.63	1.72	1.77	3.78	4.61	1.99	.68	1.41	5.45	1.34	28.07
XIV.	Lanark	Biggar (Cambus Wallace)	2.53	1.96	2.82	1.00	1.86*	1.48	5.12	2.68	1.12	2.30	5.03	2.40	30.30
	"	Cambuslang	2.32	.71	2.66	1.20	2.54	1.86	5.48	1.80	1.13	1.45	4.50	3.10	28.75
	Ayr	Colmonell	3.89	2.29	1.79	2.06	4.02	2.92	4.09	4.49	2.24	1.84	6.42	4.59	40.64
	"	Ayr (Auchinlee)	2.04	.65	1.86	1.50	1.95	1.71	3.52	3.15	1.55	1.64	4.85	2.84	27.26
XV.	"	Kilmarnock (North Craig)	1.92	.77	2.69	2.23	1.93	1.53	4.87	2.28	2.24	1.46	5.58	2.76	30.26
	Dumbarton	Arrochar	6.05	2.85	5.75	4.55	5.65	3.15	5.85	4.85	1.35	2.15	7.85	6.65	56.70
	Stirling	Killearn	5.89	.76	4.60	2.89	6.72	3.58	5.17	3.26	1.31	3.46	8.69	6.35	52.68
	Bute	Arran (Pladda)	2.13	1.56	2.06	1.54	4.06	2.85	5.18	6.04	1.10	1.28	3.36	1.37	32.53
"	Argyll	Holy Loch (Rosmor)	6.72	2.19	5.34	3.69	5.73	4.42	5.85	6.35	2.10	4.34	11.60	8.17	66.50
	"	Lochgilphhead (Kilmory)	5.71	2.15	4.60	3.03	5.78	4.34	5.94	4.24	2.61	4.22	7.84	5.66	56.12
	"	Appin (Airds)	5.60	1.90	.95	2.75	5.20	3.52	4.92	4.81	3.38	4.35	5.70	5.42	48.50
	"	Strontian (Laudale)	7.60	3.41	4.38	4.13	6.72	5.02	3.82	7.76	3.13	8.02	9.57	11.69	75.25
"	"	Cantire (Devaar)	3.02	1.23	3.20	2.49	3.88	4.35	5.12	2.76	1.73	1.88	5.62	3.93	39.21
	"	Islay (Eallabus)	3.58	1.97	3.25	2.37	3.55	3.78	4.71	4.14	2.42	3.26	6.30	6.46	45.79
	"	Jura (Fladda)	5.45	.75	3.60	1.65	6.00	6.25	3.96	5.30	4.30	3.20	7.45	5.25	53.10
	"	Tyre (Hynish)	5.35	1.93	2.86	2.05	4.81	3.41	4.17	5.35	3.65	4.10	5.70	6.60	49.98
XVI.	Clackmannan ..	Tillicoultry House	3.93	.61	3.76	2.34	3.84	2.94	5.79	3.55	.81	2.40	8.71	2.50	41.18
	Fife	Kilconquhar (Balcarres)	2.20	2.75	4.25	3.00	1.25	2.10	7.20	3.00	1.10	2.50	5.50	2.10	36.95
	"	Strathmiglo (Loden Urquht)	1.83	.95	5.48	1.72	2.38	2.53	5.12	2.46	.34	2.20	6.55	3.00	34.56
	"	Stronvar	8.29	.84	4.62	3.54	8.45	4.32	6.77	5.11	1.06	7.85	13.88	8.32	73.05
"	Perth	Dunkeld (Inver Braan)	1.67	.19	4.57	1.50	4.98	3.49	5.46	2.49	.24	3.51	8.30	4.04	40.44
	"	Dalnaspidal H.R.S.	5.68	1.04	4.32	2.57	5.71	3.52	6.66	3.39	1.56	7.21	10.12	4.88	56.66
	Forfar	Dundee (Broughty Ferry) ..	1.91	.87	3.34	1.44	1.93	2.58	5.96	1.69	.29	1.08	5.77	1.66	28.52
	"	Kirriemuir (Lintrathen) ..	4.65	.57	3.25	1.36	2.78	3.17	4.75	2.80	.46	3.58	6.99	3.20	37.56
XVII.	Kincardine	The Burn	3.80	1.60	3.70	1.90	1.90	3.10	4.10	2.80	.80	2.30	6.70	3.50	36.20
	Aberdeen ..	Coldstone Manse	2.11	1.49	3.65	1.80	1.36	2.70	4.05	1.49	1.35	2.42	4.38	1.50	28.30
	"	Haddo House	1.80	2.82	3.94	2.20	1.61	2.22	3.62	2.38	1.72	2.38	3.53	1.59	29.81
	"	Old Deer	2.04	2.31	3.87	2.14	1.60	2.46	4.31	1.79	1.85	2.67	3.68	1.58	30.30
"	Moray	Grantown	2.07	2.02	3.87	1.96	1.43	1.67	3.66	1.86	1.34	3.57	3.26	1.08	27.79
	"	Gordon Castle	1.88	2.73	3.43	1.66	1.11	2.47	2.84	1.71	1.30	3.53	2.67	.86	26.19
	"	Elgin	1.66	1.94	3.31	1.45	1.62	2.14	3.66	1.50	1.54	3.11	2.82	.92	25.67

SCOTLAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XVIII.	Ross	Strome Ferry H.R.S.	5.53	3.65	4.23	3.06	3.85	1.64	3.37	5.06	3.19	9.53	7.07	6.58	56.76
"	"	Strathconan	2.95	2.43	4.06	4.35	4.17	4.82	3.07	3.30	.82	5.44	8.74	2.59	46.74
"	"	Braemore House	2.86	4.19	5.02	4.05	4.24	4.05	2.55	4.01	1.59	6.56	10.08	3.23	52.48
"	"	Ardross Castle	2.78	1.60	3.44	2.42	2.32	3.14	5.56	1.94	1.52	4.47	5.91	.58	35.68
"	Inverness	Fort William	9.33	3.14	5.33	3.92	6.20	2.82	4.35	6.88	2.94	8.02	11.20	6.21	70.34
"	"	N. Uist (Loch Maddy)	4.58	.60	1.94	2.81	3.13	2.53	1.21	3.36	2.15	6.39	7.58	5.40	41.68
"	"	Invergarry	6.25	2.92	4.63	2.81	4.84	1.24	5.04	4.73	1.93	6.89	9.37	3.95	54.60
"	"	Aviemore H.R.S.	2.31	1.52	2.14	1.67	1.60	2.45	4.04	1.91	1.12	3.92	4.29	.87	27.84
"	"	Inverness H.R.S.	1.28	.94	2.85	1.68	1.20	1.16	3.70	1.76	.94	2.85	2.90	.96	22.22
XIX.	Sutherland	Invershin	1.05	1.43	3.23	3.47	2.87	3.57	3.74	3.24	1.79	4.12	3.24	1.06	32.81
"	"	Scourie	2.82	4.07	3.41	3.70	2.44	1.77	1.80	2.32	2.25	7.87	4.62	3.05	40.12
"	"	Assynt (Achumore)	10.20	7.10	5.90	4.50	6.00	2.20	1.40	4.00	4.10	12.20	7.20	4.00	68.80
"	Caithness	Wick H.R.S.	1.24	3.00	2.70	2.59	2.58	1.62	2.18	4.48	1.59	3.90	1.82	2.25	29.95
"	Shetland	Sumburghead (Dunrosness)	3.32	2.94	1.37	2.34	2.52	1.80	1.68	2.68	1.53	5.87.	4.08	3.91	34.04

IRELAND.

XX.	Cork	Dunmanway (Coolkelure)	6.73	.61	4.69	3.88	3.56	5.55	5.87	6.36	1.51	4.79	8.85	11.86	64.26
"	"	Cork (Blackrock)	5.15	.27	3.06	1.88	3.24	4.80	6.31	3.62	1.19	3.12	7.81	8.41	48.86
"	"	Ballyhooly (Wood Cottage)	5.97	.64	3.37	1.10	4.40	3.73	5.31	3.82	1.18	2.72	6.95	8.47	47.66
"	Kerry	Kenmare (Derreen)	6.01	1.46	5.85	4.15	5.43	5.04	5.42	7.47	1.35	3.81	8.08	13.44	67.51
"	"	Dromore Castle	5.94	.62	5.51	3.58	3.80	3.41	5.63	5.19	1.75	2.99	4.26	9.23	51.91
"	Waterford	Waterford (Brook Lodge)	3.61	.80	3.17	1.63	2.42	4.61	5.24	3.12	.75	2.43	5.32	5.91	39.01
"	Tipperary	Tipperary, (Henry Street)	4.91	1.13	2.86	2.37	2.84	3.18	4.75	2.97	.82	1.79	5.60	4.96	38.18
"	"	Nenagh (Castle Lough)	2.57	.57	3.50	1.83	3.23	5.67	4.35	2.31	.98	1.33	3.70	5.25	35.29
"	"	Ballingarry (Hazelort)	2.06	.48	3.34	1.36	2.06	4.38	5.11	2.72	.86	1.47	2.84	4.04	30.72
"	Limerick	Jane Ville	3.70	1.32	3.78	1.98	5.02	4.89	4.82	3.87	.75	2.75	7.69	6.31	47.38
"	"	Foynes	2.50	1.40	3.12	1.25	3.45	3.63	6.16	2.82	1.30	2.66	4.34	4.32	36.95
"	Clare	Ennis	1.67	.76	2.71	1.31	3.38	4.65	3.99	2.80	.88	2.38	4.50	5.93	34.96
"	"	Miltown Malbay	2.36	1.31	3.47	1.99	3.57	4.20	4.50	4.17	1.41	2.33	4.78	6.50	40.59
XXI.	Wexford	Ballyhyland	5.24	.96	4.04	2.51	3.19	5.12	7.13	2.49	.72	2.88	5.26	6.52	46.06
"	"	Gorey (Courtown)	3.49	.83	2.66	1.71	2.13	4.50	6.82	2.50	.60	2.40	4.63	4.44	36.71
"	Kilkenny	Rosbercon Castle	3.60	.38	3.05	2.06	2.56	3.75	5.10	2.81	.56	2.13	4.56	5.52	36.08
"	"	Kilkenny (Lavistown)	2.98	.50	2.42	1.59	2.30	4.97	4.29	2.92	.41	2.10	3.25	4.68	33.41
"	Wicklow	Bray (Fassaroe)	2.98	.99	6.31	2.86	2.78	3.54	5.64	1.97	.66	2.41	8.29	5.92	44.35
"	Carlow	Browne's Hill	2.93	.89	3.34	1.90	2.43	3.72	5.57	3.01	.61	2.30	3.83	4.75	35.33

IRELAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XXI.	Queen's Co.	Abbey Leix (Blandsfort)...	2.83	.82	3.06	2.26	2.54	4.53	4.82	2.41	.76	1.83	3.47	4.61	32.94
	Kildare	Straffan House	1.95	1.36	3.58	2.26	1.71	4.23	5.25	2.34	.84	1.76	3.73	3.30	32.31
	Dublin	Glasevin(BotanicGardens)	.84	1.09	3.47	1.57	.75	3.54	4.13	1.73	.63	1.11	5.61	2.28	26.75
	Meath	Clonee (Williamstown) ...	.63	1.24	3.80	2.05	1.10	3.89	4.62	2.31	.71	1.61	4.48	2.55	28.99
	"	Navan (Balrath)	1.21	.41	4.14	2.00	2.24	3.90	5.25	2.62	.73	.82	4.83	2.90	31.05
	Westmeath	Mullingar (Belvedere)	1.95	.65	3.69	2.12	2.30	4.48	5.94	2.46	.95	1.47	3.59	3.87	34.19
	"	Athlone (Twyford)	2.43	.55	3.69	2.42	2.20	4.51	5.14	2.14	.79	1.39	2.91	3.76	31.63
	Louth	Stephenstown	1.63	.39	3.58	1.70	1.77	3.62	5.98	2.87	.64	.91	3.88	3.61	30.78
	"	Greenore	1.62	.51	2.94	1.27	2.31	4.06	5.22	2.46	.90	1.15	4.93	3.36	30.53
	Longford	Edgeworthstown	2.41	.80	3.80	2.46	2.72	5.01	4.99	3.89	1.39	1.75	3.47	4.27	36.96
XXII.	Galway	Ballinasloe	2.69	.54	3.09	1.57	2.53	4.55	4.91	2.81	.83	1.10	3.23	4.33	32.18
	"	Kylemore	4.33	2.09	5.66	3.38	6.14	4.46	5.42	8.72	3.14	5.51	5.49	11.57	65.91
	"	Tuam	2.52	1.00	3.92	1.77	3.32	6.64	4.86	3.75	.82	3.42	3.64	5.83	41.49
	Mayo	Ballinrobe (Cranmore) ...	2.98	1.07	3.57	2.50	3.45	5.84	4.76	3.63	.92	3.65	3.57	7.45	43.39
	"	Westport (Oldhead)	8.20	3.20	6.20	4.30	4.20	4.10	4.00	4.40	2.10	4.20	5.70	6.40	57.00
	"	Crossmolina (Enniscroe) ..	3.31	1.67	5.42	2.48	3.42	5.14	4.82	5.08	1.45	5.06	4.64	7.20	49.69
	Sligo	Sligo (Mount Shannon) ...	3.70	2.45	2.88	2.11	2.61	5.60	4.45	3.96	1.23	3.13	3.53	3.79	39.44
	Leitrim	Ballinamore (Lauderdale)..	2.96	1.13	3.60	2.15	3.43	5.62	6.22	3.57	1.31	1.64	4.55	5.13	41.31
	Cavan	Belturbet (Red Hills)	1.81	.51	3.91	2.42	2.68	5.41	5.18	3.40	.98	1.63	3.87	4.35	36.15
	Fermanagh	Enniskillen (Florence Crt.)	3.39	1.39	2.18	1.89	3.48	4.48	6.57	5.24	1.66	2.52	6.91	8.08	47.79
XXIII.	Armagh	Edward St. [Newry]	2.78	.35	3.81	2.48	2.81	3.74	6.59	2.67	.80	1.24	6.44	5.16	38.87
	"	Armagh	1.77	.29	3.02	1.36	2.37	4.85	4.48	2.35	1.12	1.21	4.21	2.57	29.60
	Down	Newcastle (Fairleigh)	2.56	.42	4.43	1.87	5.05	6.85	6.85	4.69	1.96	1.64	6.30	7.05	49.34
	"	Donaghadee	3.27	.40	3.11	1.32	2.89	3.19	6.03	3.57	1.40	1.41	4.35	2.59	33.53
	Antrim	New Barnsley	2.77	.83	4.39	1.95	2.90	4.65	6.02	4.17	1.93	1.62	6.72	3.17	41.12
	"	Ballymena	2.69	1.04	3.04	1.95	3.26	3.48	4.64	4.11	1.87	2.84	4.04	4.19	37.15
	"	Bushmills (Dundarave) ...	2.23	1.52	2.99	1.98	2.45	2.61	6.08	5.17	1.56	2.03	5.44	3.18	37.24
	Londonderry	Newtown Limavady	1.85	2.08	2.46	3.13	1.06	4.00	4.32	4.31	1.23	1.80	4.91	2.70	33.85
	Tyrone	Stewartstown (Ardtree) ...	2.19	.38	3.71	1.85	2.99	4.49	5.39	3.97	1.20	1.23	3.49	3.41	34.30
	"	Omagh (Edenfel)	2.47	.62	3.01	2.13	2.24	5.34	5.02	4.18	1.06	1.35	3.75	3.47	34.64
	Donegal	Castlefinn (Finn Lodge) ...	2.56	.84	3.46	2.09	2.16	5.33	4.64	4.47	1.27	2.58	3.32	3.76	36.48
	"	Malin Head	3.23	.94	1.86	1.52	2.57	3.17	4.14	4.10	1.62	1.90	4.13	2.99	32.17

ON THE RELATION OF THE TOTAL RAINFALL IN 1888 TO THE AVERAGE.

AFTER so dry a year as was 1887, few persons would have looked for another dry one. We have seen by the article on Droughts that both absolute and partial droughts were remarkably rare, although in the early part of 1888 there was a scarcity of water in many places. We have further seen, by the remarks both on heavy falls in short periods and by the notes on the months, instances of excessive precipitation. We have cases of 10, 15, 20, 30, 40, and even more, inches of rain in *one month*, and yet, after all, the final test afforded by the following table proves that 1888 had less than the average rainfall.

ABSTRACT.

COUNTRIES.	No. of Records.	Mean 1860-69.	Mean 1870-79.	1888.	Diff. from Average 1870-79.	
					Amount.	Per cent.
		in.	in.	in.	in.	
England and Wales...	108	35·08	36·03	31·66	4·37	— 11
Scotland.....	28	39·30	41·42	37·10	4·32	— 11
Ireland	4	37·51	38·54	39·61	1·07	+ 2
Mean of all Stations...	140	35·99	37·18	32·98	4·20	— 11

This is not a matter of opinion, it is the fact—it is the epitome of the figures given on pages [128] to [131]. If we turn to these detailed tables we shall find that the localities at which there was any excess are very few in number, and the excesses very small in amount. There are five small ones in the S.E. of England traceable to the heavy thunderstorm-rains of July and August, and there are three others, but all of less than five per cent., in different parts of England. In Scotland there are slight excesses at two stations south of Edinburgh. In Ireland there is the only large excess, viz., in Waterford.

If, now, we turn to the accompanying map, we find a similar series of facts, and it should be remembered that this map is

DIFFERENCE OF TOTAL RAINFALL IN 1888 FROM THE AVERAGE OF 1870-79.



The round dot indicates a rainfall within 10 per cent. of the average.

The + and — respectively show excess or defect of between 10 and 25 per cent.

The same signs enclosed by a ring indicate a departure from the average of more than 25 per cent.

constructed independently of the tables which we have just been considering, and is based upon the records of many more, and different stations. As explained upon the map itself, the round white dots represent localities at which the fall during 1888 was within 10 per cent. of the average for 1870-79—rather a high average, it is true. The + and — respectively show excess and defect of more than 10 and less than 25 per cent., and it is evident, at a glance, that the prevalent symbols are either within 10 per cent. of the average or from 10 to 25 per cent. below it. We have in the map, as we had in the tables, a few plus signs in Middlesex, Essex, and Waterford, but no + is inside a ring ; that is to say, nowhere was the fall 25 per cent. above the average. There are some stations at which the fall was more than 25 per cent. below the average, as shown by the — being in a ring, but they are scattered about in a very irregular way, and are apparently chiefly due to those localities having escaped heavy thunderstorm-rains.

We have, therefore, a year in which we have had much dry weather yet few droughts, hours and days of excessive rain, months with amounts of rain almost without precedent, and yet as the final result, a total not at all remarkable, but decidedly below the average.

COMPARISON OF THE RAINFALL OF THE YEAR 1888,
WITH THE AVERAGE OF THE YEARS 1870-79.

ENGLAND & WALES.

DIV.	COUNTY.	STATION.	Average.		Depth in 1888.	Difference from average, 1870-9.	
			1860-9.	1870-9.		Amount.	Per cent.
I.	Middlesex ...	London (Camden Square)	25·68	27·24	27·74	·50	+ 2
II.	Surrey	Seething Wells	26·55	25·73	23·44	2·29	— 9
"	"	Wimbledon	23·48	25·11	25·93	·82	+ 3
"	"	Kew Observatory	23·28	24·76	25·98	1·22	+ 5
"	Kent	Maidstone (Hunton Ct.)..	26·00	26·06	25·46	·60	— 2
"	"	Greenwich (Royal Obser.)	25·18	25·39	27·51	2·12	+ 8
"	West Sussex.	Chichester (Chilgrove) ...	33·22	35·03	35·33	·30	+ 1
"	East Sussex.	Lewes (Glynde Place) ...	33·65	33·75	31·66	2·09	— 6
"	"	Maresfield (Forest Lodge)	31·48	33·37	32·64	·73	— 2
"	Hampshire ..	Isle of Wight (Osborne).	30·73	29·21	27·57	1·64	— 6
"	"	Petersfield (Liss Place) ...	38·03	36·65	32·30	4·35	— 12
"	Berkshire ...	Newbury (Welford)	28·97	31·92	30·96	·96	— 3
III.	Herts	St. Albans (Gorhambury).	27·85	29·07	26·48	2·59	— 9
"	"	Hemel Hempstead	26·39	28·66	27·76	·90	— 3
"	"	Hertford (Bayfordbury)..	25·01	27·02	23·54	3·48	— 13
"	"	Tring (Cowroast)	27·59	30·62	27·87	2·75	— 9
"	"	Hitchin	23·92	25·67	22·08	3·59	— 14
"	"	Royston	23·57	23·74	21·63	2·11	— 9
"	Northampton	Northampton (Althorp)..	23·35	26·93	26·49	·44	— 2
"	"	Wellingborough	24·09	25·72	24·36	1·36	— 5
"	Cambridge...	Ely (Stretham)	20·61	23·11	20·79	2·32	— 10
IV.	Suffolk	Bury S. Edmund (Westley)	23·52	25·51	24·61	·90	— 4
"	"	" (Culford)	24·84	26·20	23·28	2·92	— 11
"	"	Carlton Colville	24·29	26·42	25·55	·87	— 3
"	Norfolk	Norwich (Costessey)	24·04	27·44	21·94	5·50	— 20
"	"	Hunstanton	19·56	23·26	21·39	1·87	— 8
V.	Wiltshire ...	Salisbury Plain (Chitterne)	29·28	30·53	28·70	1·83	— 6
"	"	Swindon (Pen Hill)	28·59	29·64	25·89	3·75	— 13
"	Dorset	Cerne Abbas (Melbury)...	39·99	40·92	36·92	4·00	— 10
"	Devon	Tavistock Public Library	43·36	52·52	44·91	7·61	— 14
"	"	Exeter (D. & E. Inst.) ...	31·76	34·69	32·12	2·57	— 7
"	"	Barnstaple	39·91	42·43	34·29	8·14	— 19
"	Cornwall ...	Bodmin (Castle St.) 2 ft.	47·71	52·01	48·35	3·66	— 7

ENGLAND & WALES.—Continued.

DIV.	COUNTY.	STATION.	Average.		Depth in 1888.	Difference from average, 1870-9.	
			1860-9.	1870-9.		Amount.	Per cent.
			in.	in.	in.	in.	
V.	Somerset ...	Glastonbury (Street) 1 ft.	30·01	33·14	31·26	1·88	— 6
"	" ...	Sherborne Reservoir	42·10	47·26	38·17	9·09	— 19
VI.	Gloucester ...	Clifton	34·09	36·36	34·51	1·85	— 5
"	Hereford ...	Ross (The Graig)	28·21	31·75	33·01	1·26	+ 4
"	Shropshire...	Oswestry (Hengoed)	35·65	39·55	31·50	8·05	— 20
"	Worcester ...	Northwick Park	28·02	32·34	29·90	2·44	— 8
"	" ...	Tenbury (Orleton)	30·90	33·26	28·80	4·46	— 13
VII.	Leicester ...	Thornton Reservoir	25·61	27·59	24·15	3·44	— 12
"	" ...	Loughborough (Cedar Cot)	27·67	29·54	26·95	2·59	— 9
"	" ...	Belvoir Castle	24·48	25·75	22·64	3·11	— 12
"	Lincoln	Spalding (Pode Hole)	25·34	24·82	21·46	3·36	— 14
"	" ...	Lincoln M.S.&L.R.	20·87	23·70	20·34	3·36	— 14
"	" ...	Gainsborough M.S.&L.R.	21·66	22·35	18·23	4·12	— 18
"	" ...	Stockwith M.S.&L.R.	21·35	23·20	23·39	·19	+ 1
"	" ...	Brigg M.S.&L.R.	24·12	23·31	18·78	4·53	— 19
"	" ...	Grimsby M.S.&L.R.	21·39	23·04	23·99	·95	+ 4
"	" ...	Barnetby M.S.&L.R.	22·16	25·17	24·85	·32	— 1
"	" ...	Appleby Vicarage ..	24·10	26·64	24·81	1·83	— 7
"	" ...	New Holland M.S.&L.R.	22·66	25·29	21·77	3·52	— 14
"	Nottingham.	Worksop M.S.&L.R.	22·47	25·63	21·85	3·78	— 15
"	" ...	Retford M.S.&L.R.	22·74	23·04	21·80	1·24	— 5
"	Derby	Bretby [Burton]	27·41	30·97	26·41	4·56	— 15
"	" ...	Chesterfield M.S.&L.R.	26·93	30·54	24·68	5·86	— 19
"	" ...	Combs Moss M.S.&L.R.	49·62	45·71	39·20	6·51	— 14
"	" ...	Reservoir M.S.&L.R.	50·01	45·67	31·99	13·68	— 30
"	" ...	Chapel-en-le-Frith MS&LR	41·95	42·56	32·28	10·28	— 24
"	" ...	Killamarsh M.S.&L.R.	24·59	26·79	23·58	3·21	— 12
VIII.	Cheshire	Bosley Reservoir MS&LR	32·04	34·10	25·17	8·93	— 26
"	" ...	Minns M.S.&L.R.	32·85	33·90	31·81	2·09	— 6
"	" ...	Bollington (Spond's Hill)	37·46	35·52	29·22	6·30	— 18
"	" ...	Whaley M.S.&L.R.	43·89	43·38	34·58	8·80	— 20
"	" ...	Marple Top Lock M.S.&L.R.	35·25	35·94	34·39	1·55	— 4
"	" ...	Aqueduct MS&LR	34·81	33·73	29·05	4·68	— 14
"	" ...	Godley Reservoir	33·98	34·85	29·64	5·21	— 15
"	" ...	Newton M.S.&L.R.	31·63	29·30	26·15	3·15	— 11
"	" ...	Mottram (Matley's Field)	37·73	36·32	35·71	·61	— 2
"	" ...	Arnfield Reservoir	37·23	41·38	35·36	6·02	— 15
"	" ...	Rhodes Wood Reservoir..	46·32	44·74	39·49	5·25	— 12
"	" ...	Woodhead Reservoir	51·83	49·74	45·38	4·36	— 9
"	Lancashire...	Denton Reservoir	32·97	33·78	29·71	4·07	— 12
"	" ...	Gorton Reservoir	33·71	34·14	28·87	5·27	— 15
"	" ...	Manchester (Ardwick) ...	32·60	36·72	28·40	8·32	— 23
"	" ...	„ (Piccadilly) MS&LR	36·78	34·72	26·58	8·14	— 23
"	" ...	„ (Fairfield) M.S.&L.R.	40·90	37·66	36·04	1·62	— 4
"	" ...	Ashton Waterhouses MSLR	36·13	39·24	37·62	1·62	— 4
"	" ...	Bolton (The Folds)	48·98	47·23	36·59	10·64	— 23
"	" ...	„ (Heaton) 1 ft. 3 in.	44·21	45·11	34·80	10·31	— 23
"	" ...	Ormskirk (Rufford)	35·00	36·65	29·23	7·42	— 20
"	" ...	Bolton (Belmont)	56·61	59·91	53·40	6·51	— 11

ENGLAND & WALES.—Continued.

DIV.	COUNTY.	STATION.	Average.		Depth in 1888.	Difference from average, 1870-9.	
			1860-9.	1870-9.		Per Amount.	cent.
			in.	in.			
VIII.	Lancashire ..	Heywood (Nayden Dane).	44·13	44·67	32·37	12·30	— 28
"	" ..	Blackburn (Guide Res.)..	41·30	44·49	31·34	13·15	— 30
"	" ..	Blackpool (South Shore).	32·99	34·43	29·47	4·96	— 14
"	" ..	Stonyhurst College... 1 ft.	48·56	48·74	42·04	6·70	— 14
"	" ..	Clitheroe (Downham Hall)	44·79	43·40	32·98	10·42	— 24
"	" ..	Cartmel (Holker)	45·63	45·13	35·55	9·58	— 21
IX.	Yorks, W.R.	Sheffield (Redmires)	39·68	42·80	38·17	4·63	— 11
"	" ..	" (Broomhall Pk.)	31·28	32·67	26·63	6·04	— 18
"	" ..	Dunford Bridge Station..	56·18	52·51	40·86	11·65	— 22
"	" ..	Penistone.....	30·57	34·37	31·82	2·55	— 7
"	" ..	Halifax (Midgely Moor)..	50·00	48·07	44·25	3·82	— 8
"	" ..	" (Warley)	46·33	45·27	44·62	·65	— 1
"	" ..	Leeds (Holbeck)	22·85	25·02	22·26	2·76	— 11
"	" ..	Arncliffe	60·07	60·95	52·69	8·26	— 14
"	" N.R...	Malton.....	27·46	28·44	25·03	3·41	— 12
X.	North'mblnd	N. Shields (Rosella Place)	26·06	28·02	24·18	3·84	— 14
"	" ..	Whittle Dean	25·42	27·75	22·93	4·82	— 17
"	" ..	Ilderton (Lilburn Tower).	28·66	31·33	26·42	4·91	— 16
"	Cumberland.	Seathwaite	154·05	134·95	119·89	15·06	— 11
"	" ..	Ullswater (Hallsteads) ...	58·13	55·31	49·59	5·72	— 10
"	" ..	Keswick Post Office 6 ft.	62·40	59·14	54·11	5·03	— 9
"	" ..	Bassenthwaite(Mirehouse)	53·76	50·20	42·83	7·37	— 15
"	" ..	Cockermouth (Whin. Hall)	57·37	52·15	45·61	6·54	— 13
"	Westmorelnd	Kendal.....	53·32	51·78	43·04	8·74	— 17
XI.	Glamorgan ..	Cardiff (Ely)	42·02	46·35	41·74	4·61	— 10
"	Carnarvon...	Llandudno	31·00	33·63	25·89	7·74	— 23

SCOTLAND.

DIV.	COUNTY.	STATION.	Average.		Depth in 1888.	Difference from average, 1870-9	
			1860-9.	1870-9.		Amount.	Per cent.
			in.	in.	in.	in.	
XII.	Kirkcudbright	Cargen [Dumfries].....	44·37	46·65	35·79	10·86	— 23
„	Dumfries ...	Dumfries (Crichton Inst.)	39·00	41·84	30·54	11·30	— 27
„	Roxburgh ...	Kelso (Springwood Park)	24·66	27·90	26·28	1·62	— 6
XIII.	Peebles	North Esk Reservoir ...	38·01	38·66	39·20	·54	+ 1
„	Haddington.	East Linton	23·77	29·36	24·98	4·38	— 15
„	Edinburgh ..	Glencorse.....	37·52	40·52	43·36	2·84	+ 7
„	„	Harlaw.....	37·64	38·04	33·40	4·64	— 12
XIV.	Lanark	Hamilton (Bothwell Cas)	28·89	31·72	22·01	9·71	— 31
„	Ayr.....	Kilmarnock (N. Craig) ...	43·29	40·16	30·26	9·90	— 25
„	Renfrew	Ryat Lynn	47·80	50·07	44·75	5·32	— 11
„	„	Waulk Glen	49·85	48·41	43·65	4·76	— 10
XV.	Stirling	Stirling (Kerse)	32·96	33·47	29·60	3·87	— 12
„	Argyll	Lochgilphead (Poltalloch)	54·25	56·35	50·65	5·70	— 10
„	„	Stonefield	69·62	71·73	68·10	3·63	— 5
XVI.	Kinross	Loch Leven.....	36·22	38·05	32·70	5·35	— 14
„	Perth	Aberfoyle.....	61·82	59·39	56·50	2·89	— 5
„	„	Dunblane (Kippenross)...	36·16	36·00	34·20	1·80	— 5
„	„	Lanrick Castle	48·48	47·46	46·90	·56	— 1
„	„	Bridge of Turk	61·89	72·32	62·80	9·52	— 13
„	Forfar..	Craigton	M 34·88	41·96	39·31	2·65	— 6
„	„	Hill Head	M 35·19	41·82	37·44	4·38	— 10
XVII.	Kincardine..	The Burn [Brechtin]	34·91	37·85	36·20	1·65	— 4
„	Aberdeen ...	Braemar	33·40	38·14	35·01	3·13	— 8
„	„	Aberdeen (Rose Street) ..	29·43	31·75	27·81	3·94	— 12
„	Elgin	Gordon Castle.....	29·19	32·26	26·19	6·07	— 19
XVIII.	Inverness....	Culloden	27·08	25·46	21·06	4·40	— 17
XIX.	Sutherland..	Golspie (Dunrobin Cas.)M	27·69	31·94	30·75	1·19	— 4
„	Orkney	Shapinsay (Balfour Cas.).	32·41	30·41	29·30	1·11	— 4

IRELAND.

XX.	Waterford ...	Portlaw	44·44	41·65	48·94	7·29	+ 17
XXI.	Kilkenny ...	Inistioge (Woodstock) ...	39·38	46·64	47·12	·48	+ 1
XXIII.	Armagh... ..	Armagh Observatory..1ft.	32·01	30·95	29·60	1·35	— 4
„	Antrim	Belfast (Queen's Coll.)....	34·22	34·92	32·80	2·12	— 6

EXTREMES OF RAINFALL IN 1888.

Largest Rainfall, at The Sty, Cumberland..... 175·40 in.
 Least Rainfall, at Skegness, Lincolnshire..... 17·50 ,,

ENGLAND.

GREATEST.			LEAST.		
Div.		in.	Div.		in.
X.	The Sty	175·40	VII.	Skegness.....	17·50
„	Seathwaite	119·89	„	Gainsborough	18·23
„	„ (Marshall).....	114·63	III.	Chatteris (Horseway Lock).....	18·65
„	Ullscarf.....	112·10	„	Cambridge (Cherryhinton)	18·71
„	Styehead Tarn ..	102·95	VII.	Brigg ..	18·78
„	Wythburn Vicarage.....	96·64	III.	Cambridge (Beech House)	18·85

WALES.

GREATEST.			LEAST.		
Div.		in.	Div.		in.
XI.	Pen-y-gwryd	89·00	XI.	Rhyl (Sedgeley House)	20·87
„	Rhiwbryfdir	86·16	„	St. Asaph (Nantllys)	21·60
„	Neath (Glyncorwg)	81·39	„	Rosset (Trevalyn Hall)	22·82
„	Treherbert	78·11	„	Prestatyn (Nant).....	24·31
„	Llanbedr-y-Cennin(Llyndulyn) ..	76·85	„	Welshpool (Pool Quay Vic.) ..	25·68
„	Cardiff (Cwm Taff Fawr, No.6) ..	74·93	„	Llandudno (Warwick Ho.)...	25·89

SCOTLAND.

GREATEST.			LEAST.		
Div.		in.	Div.		in.
XVII.	Ben Nevis Observatory.....	132·46	XVI.	Cupar (Fife & Kinross Asy.) ..	19·30
XVIII.	Loch Shiel (Glenaladale) ...	99·39	„	Dunfermline (Outh)	20·60
„	Glenquoich	94·43	XVII.	Nairn (School House)	20·64
XVI.	Glen Gyle	89·40	XVIII.	Inverness (Culloden House) ..	21·06
XV.	Lock Eck (Benmore).....	84·08	XIII.	Leith	21·28
XVIII.	Glencarron Lodge	80·80	XVIII.	Fearn (Arboll)	21·70

IRELAND.

GREATEST.			LEAST.		
Div.		in.	Div.		in.
XX.	Killarney (Gap of Dunloe)...	89·50	XX.	Nenagh (The Lodge)	24·22
„	Mangerton	88·50	XXI.	Killiney (Eirine)	26·66
„	Kenmare (Derreen)	67·51	„	Glasnevin (Botanic Gardens) ..	26·75
XXII.	Clifden (Kylemore)	65·91	XXIII.	Banbridge (Katesbridge) ...	27·02
XX.	Dunmanway (Coolkelure) ...	64·26	XXI.	Killiney (Cloonevin)	27·82
XXII.	Westport (Oldhead House)...	57·00	„	Dundalk (Farndreg) ..	28·24

GENERAL TABLES
OF
TOTAL RAINFALL IN 1888,
AT UPWARDS OF
2000 STATIONS
IN THE
BRITISH ISLES.

EXPLANATION OF THE ARRANGEMENT OF THE FOLLOWING GENERAL TABLES.

The divisions are the same as those adopted by the Registrars General of England and Scotland, and the counties follow the same order as in the reports of those officers; but an alphabetical list of the counties is given, whereby the page or pages on which all returns from each county will be found, can be at once ascertained.

The stations in each county are arranged nearly in the order of their latitude from South to North.

To facilitate finding the fall in any part of the country, the first name is almost always that of a place given in *Bradshaw*, the *British Postal Guide*, or the *Clergy Directory*; the second name is generally added to fix accurately the site of Observation; but, in a very few instances, the second name is in [] instead of (); it then shows that the nearest town is in an adjoining county. For instance, "Lowestoft (Carlton Colville)" means Carlton Colville, near Lowestoft, both being in one county, but "Geldeston [Beccles]" means Geldeston, Norfolk, near Beccles, in another county—Suffolk.

The contents of the columns are sufficiently explained by the headings, except that in the column headed "diameter," figures will occasionally be noticed of a different type from the rest of the tables, these figures indicate the length of the sides of rectangular mouthed gauges. These measurements are all in inches.

The letter D denotes that a copy of the daily record has been received, that it is perfect throughout the year, and that the printed amount is the correct total of these daily entries. The letter M indicates a monthly record, *i.e.*, that the observation is made only on the first of each month.

An asterisk * denotes that the gauge was tested before erection, and a † that it has been visited and examined since. A note of interrogation (?) implies doubt, not necessarily error. ... indicates the absence of information.

In the column of altitudes several symbols are used, their meaning is as follows:— ∇ , that a series of levels has been taken from the gauge to an Ordnance bench mark; T, that the height is estimated or ascertained approximately from the same source; l, that levels have been taken from the gauge to the sea, or to some datum other than Ordnance mean sea level; B, that the altitude has been taken by the barometer; and ?, that the height is uncertain

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ENGLAND AND WALES.

DIVISION I.—MIDDLESEX.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
MIDDLESEX.						
D Sunbury (Hanworth Road)	W. B. Bryan, Esq., C.E.	8	1 0	50 ∇	25·48	176
Teddington (Gomer House)	R. D. Blackmore, Esq..	5	0 10	26 ∇	25·63	159
D Staines	J. Gundry, Esq.	5	1 0	51 ∇	26·52	174
„ (Knowle Green)	Miss Pellatt	5	5 2	...	26·38	155
Twickenham (Holy Trinity Vic.)	Miss Anderson	5	1 5	37 $\uparrow$	25·89	145
D Isleworth (Spring Grove)	R. W. Peake, Esq. ...	5	1 0	69 $\uparrow$	25·55	128
Gunnersbury Station	E. Mann, Esq.	5	0 11	35	24·63	...
Ealing (Local Board Office)	C. Jones, Esq., C.E. ...	5	27 0	110 $\uparrow$	26·18	148
D Westminster (Spring Grdns), S.W.	E. Bazalgette, Esq., C.E.	8	6 0	35 ∇	27·97	126
„ { „ „ } ...	„ „ „ ...	12	65 11	95 ∇	24·30	126
„ { „ „ } ...	„ „ „ ...	8	66 4	95 ∇	21·79	126
D Kensington (Edith Road)	G. von U. Searle, Esq.	5	0 10	35?	25·96	179
D „ (Holland House) ...	Mr. C. Dixon	5	6 6	68 ∇	26·54	153
D „ (Addison Gardens) ...	G. H. M. Whish, Esq..	5	1 1	23 $\uparrow$	28·82	179
„ (Campden Hill, W.)	M. W. Hervey, Esq. ...	8	4 10	130 ∇	26·92	168
D London (Savile Row, W.)	G. S. Johnson, Esq. ...	5	...	...	26·08	153
D „ (Lansdowne Cres. W.) ...	G. T. Gwilliam, Esq. ...	5	0 9	79 $\uparrow$	27·44	172
„ (Guildhall), E.C.	Col. Haywood, C.E. ...	8	2 6	49 $\uparrow$	23·63	139
„ { „ „ }	„ „ „ ...	8	51 0	98 $\uparrow$	24·22	139
„ (Old Street), E.C.	The Royal Meteor. Soc.	5	1 0	70 $\uparrow$	28·08	181
„ (Regent's Pk. R. Bot. Soc.)	W. Sowerby, Esq.	8	1 0	126 ∇	29·89	193
D† „ (Camden Square), N.W..	G. J. Symons, Esq. F.R.S	8	0 8	111 ∇	27·74	173
† „ { „ „ }	M „ „ „ ...	5	1 0	111 ∇	28·13	...
† „ (235, Camden Road), N.	W. B. Butler, Esq. ...	5	3 0	160 $\uparrow$	27·76	192
† „ { „ „ }	M „ „ „ ...	5	1 1	160 $\uparrow$	27·96	...
Hackney (Richmond Road), N.E.	J. W. Tripe, Esq. M.D.	5	7 0	65 ∇	24·84	171

DIVISION I.—MIDDLESEX.—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
MIDDLESEX—(con.)						
Hampstead (Roslyn House) N.W.	C. H. L. Woodd, Esq..	8	1 4	330 †	29·12	...
„ (Kidderpore Reserv.)	M. W. Hervey, Esq....	8	1 6	323 †	29·75	144
D „ (Branch Hill Lodge)	B. Woodd Smith, Esq.	8	0 10	380 †	29·25	179
† „ (Squire's Mount) ...	Rogers Field, Esq. C.E.	5	1 0	388 †	28·68	160
„ (The Pryors)	„ „ „ „	5	1 0	327 †	28·18	185
D Stoke Newington Res., N.....	J. Francis, Esq., C.E.	9	3 3	104 †	26·29	163
D Highgate (Northwood Road).....	Mrs. Sowerby Wallis...	5	1 0	300 †	27·90	156
† Child's Hill (Helenslea), N.W....	A. J. Woodhouse, Esq.	5	1 6	245 †	30·12	189
† „ „ „ „ „ M	„ „ „ „ „	5	1 6	245 †	28·32	...
D Upper Clapton (Warwick Road)	W. Hayward, Esq. ...	5	3 6	...	27·91	175
„ „ „ „ „	S. A. M. Satow, Esq....	8	1 0	88	27·65	...
* „ „ (The Common) ..	J. Parnell, Esq.	5	1 1	98 †	26·26	175
Finchley Park (Endymion Ter.)	Rev. E. Healy	5	1 6	125 †	28·45	...
D Tottenham	J. E. Worth, Esq., C.E.	8	1 0	46	26·02	175
D Muswell Hill	Miss Abethell.....	5	0 10	310 †	29·23	198
Finchley East (Elmhurst).....	B. C. Wainwright, Esq.	8	0 7	300 †	26·00	170
† „ (Etchingham Park) ...	J. W. Scott, Esq.	5	0 11	295 †	29·72	187
D† „ „ „ „ „	„ „ „ „ „	8	1 3	295 †	29·76	187
D Pinner Hill.....	A. Helsham-Jones, Esq.	5	3 6	410 †	25·16	172
D Uxbridge (Harefield Park)	W. F. Vernon, Esq. ...	8	1 0	296 †	31·39	115
D Friern Barnet (Sewage Works)..	Baldwin Latham Esq CE	5	1 0	156 †	25·82	179
D Whetstone	„ „ „ „ „	5	...	315 †	28·22	164
D Winchmore Hill (Chase Side) ...	Mr. G. Duffield	5	0 11	...	26·87	153
D Enfield (Old Park)	A. L. Ford, Esq.	5	1 9	156 †	28·68	190
D „ (Nag's Head Lane)	J. Francis, Esq., C.E..	12	3 0	108 †	29·58	169
D „ (Forty Hill)	T. Paulin, Esq.	8	1 0	120	28·88	163
„ „ „ „ „	„ „ „ „ „	5	1 0	120	28·92	163
„ „ „ „ „	„ „ „ „ „	5	5 0	125	28·72	163
D Monken Hadley [Barnet].....	F. A. Milne, Esq.	5	0 10	426 †	28·13	180

DIVISION II.—SOUTH EASTERN COUNTIES.

SURREY.

D Haslemere	J. W. Penfold, Esq. ...	8	4 0	481 †	36·67	168
„ (Grayswood Hill)	B. E. C. Chambers, Esq.	5	1 0	580 †	38·60	...
Godalming (Dunsfold)	Mr. W. Underwood ...	5	2 0	166	24·19	...
Haslemere (Weycombe)	G. B. Buckton, Esq. FRS.	5	4 0	583 †	35·64	...
Godalming (Hascombe).....	E. S. Rowcliffe, Esq....	10	2 0	263 †	27·40	...
D Ewhurst (Heathside).....	J. Sparkes, Esq.	5	0 9	600 †	33·13	189
D Godalming (Witley)	Mrs. Foster.....	5	1 0	350 †	29·65	179
Dorking (Holmbury).....	Mr. Bayman	5	1 0	560 †	34·40	270
D Shere (Hound House)	H. Edlemann, Esq. ...	5	1 0	420 †	31·61	164
D Dorking (Abinger Hall)	Sir T. H. Farrer, Bt....	8	2 0	320 †	31·34	193
D† „ (Holmwood)	A. Sconce, Esq.	5	1 2	320 †	30·98	111
† „ (Fir Tor)	F. Taylor, Esq.	5	0 10	280 †	28·81	...

DIVISION II.—SOUTH EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
SURREY—(con.)						
D Betchworth (Brockham Vic.) ...	Rev. A. Cheales	5	1 0	158 π	29·01	156
D Guildford (Guildown The Beeches)	Miss Hadden	5	0 11	220 $\uparrow$	28·79	196
D " (" Observatory)	Late J. R. Capron, Esq.	5	1 1	249 π	26·90	182
D Farnham (The Bourne Vicarage)	Rev. T. W. Sidebotham	5	1 0	308 π	27·94	189
D Red Hill (Beech House)	R. Barrington, Esq. ...	8	1 1	280	29·81	163
D Reigate (Woodhatch Lodge) ...	T. B. Haywood, Esq. ...	5	1 0	270 $\uparrow$	30·02	182
D " (Ringley Mead)	R. L. Hesketh, Esq. ...	5	1 1	345 $\uparrow$	30·66	161
D Dorking (The Denbies)	Mr. J. Beesley	5	0 6	610 $\uparrow$	32·34	165
D Buckland (Shagbrook)	Miss Carr Saunders ...	5	1 0	240	28·20	170
D† Red Hill (Oxford Road)	W. H. Tyndall, Esq. ...	8	1 0	300 π	30·24	176
D Reigate (Dovers Lodge)	R. W. Clutton, Esq. ...	5	0 7	192	29·75	183
D " (Holmfels)	Miss Baker	5	1 0	264 $\uparrow$	29·79	172
D " (Castle Grounds)	Mr. G. Crutchfield	5	1 0	325 π	30·66	181
D " (Doods)	G. E. Pym, Esq.	5	1 6	350 π	30·10	185
† " (Wray Park)	A. Rosling, Esq.	5	1 0	330 $\uparrow$	31·10	170
D " (Nutwood)	H. E. Gurney, Esq. ...	5	1 4	440 $\uparrow$	33·39	202
D Nutfield Priory	J. Fielden, Esq.	8	1 2	468 π	28·96	188
D " (Holmesdale)	C. T. Maw, Esq.	8	0 8	500 $\uparrow$	29·52	163
D Reigate Hill (Lovelands)	R. Binns, Esq.	5	1 3	600 ?	33·43	192
D Guildford (Wern)	Major Mathew	5	4 0	170	26·20	138
D Dorking (High Ashurst)	The Hon. H. D. Ryder	5	12 0	550	31·84	171
D Horsley Towers	The Earl of Lovelace...	8	1 2	300	33·27	...
D Caterham Asylum	Dr. Elliot	5	1 0	609	31·24	...
D " Valley (Birchwood Ho.)	Messrs. C. & F. Rutley	5	1 0	471 π	29·88	188
D Pirbright Vicarage	Rev. F. Owston	5	1 0	151 π	26·88	176
D Camberley (Heathcote)	Maj.-Gen. Stotherd C.B.	5	1 0	292 π	26·83	161
D Kenley (Ingleside)	H. Smith, Esq.	8	1 0	375 $\uparrow$	33·66	219
D Ashted (D'Abernon Chase) ...	Sir W. Vincent, Bart..	5	1 0	300 $\uparrow$	26·42	124
D Woking (Horsell Vic.)	Rev. J. Back	5	1 0	141 π	25·95	178
D Cobham (Leigh Hill House) ...	J. Macaulay, Esq.	5	2 4	79	25·86	159
D Caterham Junction (Tudor Cot.)	F. C. Bayard, Esq. ...	5	1 0	216 π	31·87	192
D Bagshot (Collingwood)	Mr. J. Bryan	5	1 0	396 π	28·82	190
D Chobham	H. Horncastle, Esq. ...	...	...	...	25·56	176
D Chertsey (Ottershaw)	R. H. Otter, Esq.	5	1 0	200 $\uparrow$	26·85	200
D Weybridge Heath (Netherfield)..	C. H. Parkes, Esq. ...	5	1 0	160	26·92	169
† " " (Bartropps) M	Mrs. Harrison	8	0 6	150 π	27·46	...
D " " (Oakfield) ...	H. Yool, Esq.	5	1 0	107 π	26·07	174
D " (St. George's Lodge)	Mrs. Smith	5	1 9	...	26·95	145
D " (Church Street) ... M	H. Yool, Esq.	5	1 0	55 π	26·01	...
D Esher (Sewage Works)	Baldwin Latham Esq CE	5	1 0	40 π	23·03	153
D " (West End)	W. H. Dines, Esq.	5	1 0	51 $\uparrow$	24·96	...
D Walton-on-Thames (Hersham)..	" " " "	8	4 0	55 π	25·60	147
D Addington (Park Farm)	F. C. Bayard, Esq. ...	5	1 0	268 π	28·24	156
D Wallington	" " " "	5	4 1	157 π	27·96	179
† Sutton (Mulgrave Road)	W. Goode, Esq.	5	5 6	230 π	27·93	167
D " (Grange Road)	F. C. Bayard, Esq. ...	5	1 6	230	25·63	...
D Carshalton (The Wrythe)	" " " "	5	4 10	107	26·27	167
D Croydon (Waddon House)	P. Crowley, Esq.	5	1 0	156 π	25·94	183

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DIVISION II.—SOUTH EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
KENT—(con.)						
Tunbridge (Penshurst Place) ...	The Hon. H. Sidney...	5	0 11	115	27·39	...
D „ (St. Mary's).....	W. C. Punnett, Esq....	5	1 6	96 A	29·36	159
„ { „ „ } <i>Snowdon</i> ..	„ „ „ ..	5	1 0	96 A	28·80	159
„ { „ „ }	„ „ „ ..	8	4 0	98 A	28·62	...
Ashford (Eastwell Rectory)	Rev. G. E. Gwynne ...	5	0 11	270 T	28·70	...
D „ (Westwell)	Rev. H. H. D'Ombraïn	5	1 0	272 A	28·36	152
Edenbridge (Falconhurst)	J. G. Talbot, Esq., M.P.	5	1 0	300	31·25	133
D Lower Walmer	Mr. G. L. Hall	5	1 4	20	26·94	169
D† Maidstone (Hunton Court)	Mr. P. Goddard	8	0 6	80 T	25·46	155
D „ (Mote Park).....	Mr. C. Davies.....	10	3 6	95 P	23·97	164
D „ (Mount House)	C. A. Case, Esq.....	5	1 0	170 P	27·90	185
„ (Hospital).....	M. A. Adams, Esq. ...	5	...	200	21·39	...
D „ (Debtling)	R. Cooke, Esq.	5	1 2	330 T	28·27	211
Sheldwich	Rev. B. S. Malden.....	5	1 0	250 T	29·55	190
D† Selling (Harefield).....	E. Neame, Esq.	5	2 6	217 T	27·54	209
D Canterbury (Burgate Street) ...	B. Rigden, Esq.....	5	9 6	58 A	23·68	153
„ (Harbledown)	Miss Metcalfe.....	5	1 6	165 A	25·19	165
† Seven Oaks (River Hill)	J. T. Rogers, Esq.....	8	3 6	535 A	30·64	...
D „ (Clare Bank)	J. M. Clabon, Esq. ...	5	4 0	540 T	31·92	195
„ (Purleigh)	W. W. Wagstaffe, Esq.	6	1 5	330	35·49	...
D† „ (Riverhead Vic.) ...	Rev. J. M. B. Murdoch	5	0 6	300 T	30·96	172
„ (Chevening Gardens)	Mr. C. Sutton.....	5	1 0	360	31·14	...
Aylesford (Preston Hall)	Mr. A. Waterman.....	5	1 6	80	25·04	...
D Sittingbourne (Sharsted Court).	Faunce de Laune, Esq.	5	1 0	276	26·07	182
D Lynsted (The Batteries)	R. M. Mercer, Esq. ...	5	1 0	...	25·05	143
Ospringe (Lorenden)	W. C. Stunt, Esq.....	5	1 3	180 P	22·05	154
D Keston (Bradfield)	A. Hill, Esq.	5	1 0	350 T	28·15	191
D „	Miss Holland	5	0 6	420 T	31·32	250
„	„ „	5	0 6	420 T	30·59	...
D „ Tower.....	G. Buchanan, Esq., C.E.	8	0 10	351 T	30·09	160
D† Ramsgate (The Vale)	M. Jackson, Esq.	5	1 0	90 T	23·89	159
D Birchington	E. S. Lendon, Esq.....	5	1 0	70	21·96	146
Herne Bay (Eddington)	R. M. Mercer, Esq. ...	5	1 0	4 P	22·72	...
D Reculver (Brook)	A. Collard, Esq.....	5	6 3	40	19·35	167
D Hayes (Layham's Farm)	W. Ashcroft, Esq.....	5	1 4	500	29·45	180
D „ Common (The Warren)...	Miss Akers	5	1 0	296	28·15	189
Chatham	The Meteor. Council....	...	1 3	137	27·96	141
D Rochester (Knights Place)	J. Pye, Esq.	5	2 6	320	27·93	168
D Margate (Renfrew Villa)	T. Twyman, Esq.	5	1 0	50 T	22·45	177
D „ (Apsley House)	J. Stokes, Esq.	5	1 0	84 L	21·69	171
D Sheppey (Leysdown).....	Rev. A. Farbrother ...	5	1 2	47	22·00	176
D Frindsbury (Manor Farm)	Mr. F. Baker.....	5	1 0	100	24·33	145
Bickley (Highfield)	J. Batten, Esq.	5	1 2	295	30·03	...
D „ (The Pines)	C. Boosey, Esq.....	5	1 0	280	32·85	109
Chislehurst (Hillside)	Col. Silver	5	1 5	...	30·20	118
D „ (The Chestnuts).....	J. B. Snell, Esq.	5	1 0	325 T	26·92	156
D† Beckenham (Foxgrove).....	Percy Bicknell, Esq. ...	5	0 6	142 A	26·30	150
D† „ („).....	„ „ „ ..	5	4 0	145 A	25·51	149

DIVISION II.—SOUTH EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which '01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
KENT—(con.)						
▷ Rochester (Abbot's Court, Hoo.)	Warwick Stunt, Esq....	5	1 0	10	24·77	160
Forest Hill (Newfield House) ...	E. F. Behrens, Esq....	5	1 0	220	26·65	145
▷ Gravesend (Park Place)	Mrs. Walker	5	1 0	24?	22·59	179
▷ Rochester (Cooling Castle)	W. Wood, Esq.	5	4 10	10	24·11	141
▷ " (Hoo St. Mary)	H. Pye, Junr., Esq. ...	5	5 6	146 †	22·32	170
▷ Eltham (Victoria Road)	Capt. M. S. Richardson	5	0 8	205 †	27·75	168
Blackheath	J. Glaisher, Esq., F.R.S.	8	0 5	150	27·08	163
" Park (Elmsdale) ...	C. Lethbridge, Esq. ..	5	0 11	90	25·99	181
Greenwich (Royal Observatory)..	W.H.Christie, Esq.FRS	8	0 5	155 †	27·51	165
Woolwich	F. C. Bayard, Esq. ...	5	1 0	352	26·02	178
Erith (Crossness)	E. Bazalgette, Esq., C.E.	14	1 0	16 †	25·23	154
" (")	" " "	14	1 0	24 †	26·21	154
WEST SUSSEX.						
Bognor (Lidsey Lodge)	H. Neale, Esq.	8	1 2	...	25·39	150
▷ Littlehampton (Surrey House)...	G. Neame, Esq.	5	1 8	20 †	29·07	169
▷ Worthing (Heene)	W. J. Harris, Esq. ...	8	1 0	34 †	25·86	181
" (Infirmary)	" " "	5	1 0	22	25·74	175
▷ Arundel (Yapton)	W. A. Hounsom, Esq..	5	1 0	24 †	26·64	185
" (Drove Farm). ..	" " "	5	1 0	14 †	26·05	183
Chichester (WestgateMeadow)...	Dr. Tyacke	8	0 6	40	28·70	140
▷ Arundel (Clapham Rectory) ...	Rev. A. H. S. Barwell	5	1 0	150 †	30·03	198
" (Patching)	J. Drewitt, Esq.....	5	1 0	180	30·26	184
" (")	Mrs. Joad	5	0 10	130	29·76	194
" (The Parade)	R. Holmes, Esq.	8	3 1	75	27·71	153
" (Dale Park)	Mr. E. Sandford	5	0 11	320	32·25	123
Bramber (Maudlin)	Mr. H. J. Hide	5	1 0	80	29·02	106
▷ † Steyning	Col. Ingram	5	1 0	80 †	34·33	153
Chichester (Eartham House) ...	Sir P. Milbanke, Bt....	3	4 6	230 †	29·98	...
▷ " (West Dean)	Mr. G. Broomfield.....	5	1 6	190 †	41·88	156
▷ " (Singleton Rectory)...	Rev. F. A. Bowles.....	5	1 0	240	38·81	125
† " (Chilgrove)	J. W. Woods, Esq. ...	5	0 6	284 †	35·33	...
▷ Compton [Petersfield]	Rev. H. M. Langdale...	5	1 0	255 †	37·57	189
† Petworth Rectory	Rev. C. Holland.....	5	3 6	180 †	35·38	166
Midhurst (Lynch Farm)	G. Eames, Esq.	5	0 6	160 †	37·79	109
† Horsham (Leonardslee)	Mr. Ford.....	5	1 6	273 †	30·14	...
▷ " (Rusper)	A. F. Parbury, Esq. ...	5	1 0	372 †	27·79	142
EAST SUSSEX.						
Beachy Head	Miss W. L. Hall	5	1 0	515 †	22·05	...
" "	" " "	5	1 0	495 †	24·75	...
Eastbourne (East Dean)	E. W. Adamson, Esq..	5	0 10	180	25·48	156
" (Wilmington Square)	R. Sheward, Esq.	8	0 6	39	28·47	170
▷ † " (Osborne House) ...	Miss W. L. Hall	5	4 3	30 †	27·61	191
▷ † " (The Gore)	" " "	5	1 0	85 †	26·98	181
▷ † " (Cemetery)	" " "	5	4 0	160 †	27·95	170
† Brighton (Kemp Town)	Mr. Wyatt	5	1 0	82 †	27·53	159
▷ † " (Old Steine)	Dr. Newsholme ..	5	1 0	20	28·16	166

DIVISION II.—SOUTH EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which "01 or more fell
		Diameter	Height Above Ground.	Height Above Sea Level		
			ft. in.	feet.	inches.	
EAST SUSSEX—(con.)						
† Brighton (Blatchington Road) ...	Mr. J. Park	8	0 6	55 †	27·81	...
„ (W.W. Goldstone Botm.) ...	J. Baker, Esq.	5	0 10	140 †	27·79	...
† „ („ Lewes Road) ...	„ „	5	3 8	105 †	30·48	...
St. Leonards (London Road) ...	The Meteor. Council ...	5	1 0	166 †	31·73	213
D „ (The Grove)	W. B. Young, Esq. ...	5	1 1	110 †	30·71	177
D † Hastings (The Hollies)	A. H. Wood, Esq. C.E.	5	6 0	116 †	30·14	215
D „ (Buckshole)	P. H. Palmer, Esq.	8	0 8	106	32·19	176
D Hailsham	Rev. F. Clyde Harvey..	5	1 0	105	29·02	147
D † Falmer	R. R. Verrall, Esq. ...	5	3 0	312 †	32·45	154
D Lewes (Iford)	A. Hillman, Esq.	5	1 0	33 †	32·64	197
D † „ (Glynde Place)	Mr. W. McLeod	5	4 6	49 †	31·66	163
D „ (Bedford Lodge)	Mrs. Kemp	5	1 0	100 †	26·78	181
„ (Castle Place)	C. L. Prince, Esq.	5	0 11	100 †	29·64	152
„ (Southmall)	Miss M. H. Rickman...	5	0 10	40 †	26·10	169
† Hastings (High Beech Hollington)	Col. Lewis	5	1 0	320 †	30·94	190
Lewes (Conyborough Park)	Lord Monk Bretton ..	...	...	...	38·72	...
D Winchelsea (The Friars)	Miss Stileman	5	1 2	115 †	21·60	157
Battle (Whatlington)	F. Gripper, Esq.	5	1 3	...	30·95	191
D Warbleton (The Rectory)	Rev. R. G. Penny	...	1 1	182	30·72	177
† Waldron (Heatherden House) ...	J. G. Boucher, Esq. ...	5	1 3	476	33·12	150
† „ (Bryckden)	J. Graham, Esq., M.D.	5	1 0	320 †	33·97	...
† „ „	„ „	8	1 0	320 †	33·93	...
D Burgess Hill (Prescott)	W. T. Reynolds, Esq..	5	1 0	...	29·42	161
Wivelsfield (Lyoth)	T. P. Descow, Esq. ...	5	1 1	...	32·10	...
D Newick (Ketches)	Capt. G. Ruck Keene, RN	8	0 7	192 †	28·38	126
„ (Beechlands)	T. St Leger Blaauw, Esq.	5	1 1	...	32·41	149
D Uckfield House	Miss L. Day	8	0 8	200 B	30·10	186
D † Maresfield (Forest Lodge)	Capt. W. Noble	8	1 2	247 †	32·64	209
D † Fletching	Dr. Treutler	5	1 0	140	30·18	187
D Cuckfield (Borde Hill House) ...	Mr. R. Inglis	5	3 0	270 B	31·78	178
„ „	The Meteor. Council ...	...	...	...	31·50	180
D † Mayfield Vicarage	Rev. H. T. M. Kirby...	8	0 8	425 †	32·24	171
D † Crowborough (The Observatory).	C. L. Prince, Esq.	8	0 8	777 †	37·24	178
Balcombe Place	B. A. Hankey, Esq. ...	8	1 3	289 †	31·38	192
Ticehurst	Mr. Davies	5	4 9	423 †	32·47	115
D Wadhurst (Lower Cousley Wood)	F. Wilkin, Esq.	5	1 0	416 †	30·29	188
Lamberhurst (Scotney Castle) ...	E. Hussey, Esq.	5	4 3	202 †	27·05	...
D Frant (Myrtle Villa)	Miss Appellina Scott...	5	1 0	506 †	30·16	153
„ (Eridge Castle)	Mr. J. Rust	6	2 0	400	32·45	169
D Withyham (Leyswood)	Mr. T. Moorhouse	8	1 4	420	31·74	146
Forest Row (Ashdown Cottage) ..	H. J. Slack, Esq.	8	3 6	386 B	29·17	...
Worth Rectory	Rev. G. W. Banks ...	5	4 6	309 †	30·62	182
East Grinstead (Old Stone House)	P. E. Wallis, Esq.	5	4 0	448 †	34·71	173
„ „ (Halsford Park) ..	W. V. K. Stenning, Esq.	5	1 3	365 †	34·63	171

DIVISION II.—SOUTH EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell.
		Diameter	Height above Ground		Height above Sea Level	
			ft.	in.	feet.	inches.
HAMPSHIRE.						
ISLE OF WIGHT.						
Ventnor (Consumption Hospital)	Mr. H. Sagar	5	1	0	75 T	26·31 188
Shanklin (Bondi)	A. Parbury, Esq.	5	1	0	150	29·94 112
D Sandown (Lake Hill)	W. E. Green, Esq. .. .	5	1	0	85	28·69 164
Brading	Rev. E. Summers .. .	5	1	2	60	23·95 ...
D Newport (Lugley House)	Rev. E. W. Watts .. .	5	1	0	...	29·02 179
Ryde (Thornbrough)	Col. Clarke	5	1	0	143 T	30·77 ...
D " (Town Hall)	F. Newman, Esq.	8	1	0	83 T	28·49 187
Wootton (Fernhill)	F. Brodie, Esq.	8	0	8	118 T	27·02 ...
D† Osborne (Newbarn Cottage)	J. R. Mann, Esq.	8	0	8	172 T	27·57 175
D West Cowes (Holmwood)	C. T. Maw, Esq.	8	0	8	40 T	27·74 190
Hurst Castle	The Meteor. Council ...	8	0	11	9	25·41 191
D Bournemouth (Queen Anne Gdns.)	Mr. W. Searle	5	0	4	150	31·33 163
" (Tregew)	Adl Sir B. J. Sullivan KCB	5	1	0	134 T	26·44 117
Christchurch (South Bourne)	Dr. Compton	5	1	0	91	25·48 167
D " (Mudford)	F. H. D. Eyre, Esq. ...	5	0	3	15 L	26·33 207
D " (Kenilworth)	J. H. Bridgford, Esq. .	5	1	2	100 P	24·30 150
D Lymington (Pennington)	Miss E. Lomer	5	0	9	96	30·30 179
Portsmouth	The Roy. Meteor. Society	5	1	0	20	25·28 187
D " (Fort Cumberland)	H. P. Boulnois, Esq. C.E.	8	1	0	24	22·72 129
D " (Closewood, Cosham)	O. Philpott, Esq.	5	0	9	125 T	29·45 172
D Havant (Farlington)	H. R. Smith, Esq., C.E.	5	1	0	77	27·37 193
" (")	" " "	5	1	0	77	27·40 ...
D "	" " "	5	1	0	25	27·85 135
"	M " " "	5	1	0	25	28·15 ...
D Emsworth (Redlands)	F. Jacomb Hood, Esq. .	5	1	0	90 T	28·49 179
Southampton (Cadland)	J. Laurie, Esq.	8	4	6	52 T	32·75 194
D " (Netley)	Prof. J. Lane Notter ...	8	0	5	37 T	32·85 208
" (Ordnance Surv. Off.)	Col. Sir C. Wilson, FRS.	5	1	0	79 T	31·84 174
D Botley (Hall Court)	Adml. Murray-Aynsley	8	0	7	108	33·64 181
Horndean (St. Catherines)	Miss Barnes	8	1	7	417 T	34·25 193
D Idsworth House	Mr. N. F. Fuller	5	1	0	300	35·93 138
D Southampton (Westend)	C. Purrott, Esq.	5	1	6	244 T	35·69 199
D* " (Highfield) Snowdon	Rev. H. Garrett	5	1	0	130 T	31·27 191
" { " " }	" " "	5	1	0	130 T	31·80 ...
† " { Red Lodge }	R. C. Hankinson, Esq. .	5	0	6	206	30·47 195
D " { " " }	" " "	5	4	0	200 T	31·49 ...
D Fordingbridge (Oaklands)	T. Westlake, Esq.	8	1	0	135 T	29·13 158
Bishops Waltham (Swanmore House)	W. H. Myers, Esq.	8	1	0	390 T	32·20 140
Droxford (Fir Hill)	Rev. S. King	5	1	0	212	29·57 ...
Fordingbridge (Wood Green)	H. Hinxman, Esq.	5	1	2	140 T	28·21 ...
Petersfield (Liss Place)	F. Coryton, Esq.	7	0	7	250 T	32·30 ...
D Alresford (Cheriton Rectory)	Rev. A. Orr	5	2	6	240	31·59 174
D " (Ovington)	Rev. W. H. B. Stocker	5	5	1	225 T	32·55 191
" (Arle-Bury)	Mrs. Wood	5	1	6	238 T	31·82 156
Alton (East Tisted Rectory)	Rev. F. Howlett	5	1	1	420 T	35·50 ...
D " (The Wakes, Selborne)	General Parr	5	5	3	400	34·12 166

DIVISION II.—SOUTH EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
HAMPSHIRE—(con.)						
Winchester (Harestock)	Col. Knight	5	1 0	302 π	32·45	190
Liphook (White Hill Chase) ...	Col. R. H. Maude	5	1 0	300 π	29·94	122
Alresford (Swarraton Rectory)...	Rev. W. L. W. Eyre...	5	1 0	310 π	33·05	183
Alton (Thedden Grange)	J. G. Wood, Esq.	8	1 3	600 $\uparrow$	35·06	...
„ (Ashdell)	F. Crowley, Esq.	8	3 6	433 π	32·38	180
„ (Eagles Nest)	„ „	5	52 4	505	19·52	...
Micheldever (Northbrook)	J. A. Caird, Esq.	5	1 1	270 $\uparrow$	41·36	...
Whitchurch (Long Parish)	C. Durnford, Esq.	...	...	...	32·40	181
Andover (The Knoll)	G. H. Westbury, Esq..	6	0 10	196 $\uparrow$	32·32	192
Tedworth House [Ludgershall]..	Mr. G. Inglefield	8	1 8	357 $\uparrow$	33·95	166
Aldershot	D. T. Livesey, Esq. ...	5	1 0	250 π	28·40	149
Basingstoke (Chapel Hill)	G. Stephens, Esq.	5	1 0	328 $\uparrow$	30·30	189
† Rotherwick (Tylney Hall)	C. E. Harris, Esq.	5	0 8	330 $\uparrow$	27·47	...
„ Fleet (Claremont House)	Miss L. Pasley	8	2 0	280	30·51	173
„ Basingstoke (Monk Sherborne) ..	Rev. Canon Willes ...	5	1 6	314 $\uparrow$	28·44	173
„ „ (Sherborne St. John)	Rev. D. W. Chute	5	1 2	267 $\uparrow$	29·06	193
Kingsclere (Ramsdale)	Miss A. F. Fuller	5	1 0	341 π	27·13	175
Hartley Grange	W. Walkinshaw, Esq..	5	1 0	220 π	26·31	...
„ Wespall	Rev. J. C. Keate	8	0 9	233 π	25·96	...
Bramley	Rev. C. Eddy	8	0 9	230 $\uparrow$	26·88	...
„ Strathfield Turgiss	Rev. C. H. Griffith	5	3 0	200 π	27·75	180
„ Heckfield (Park Corner)	J. Martineau, Esq.	5	1 2	257	24·28	138
„ „ Place	Mr. W. Wildsmith ...	8	1 0	262 $\uparrow$	26·12	165
BERKS.						
Newbury (Donnington Sq.)	W. J. Cowper, Esq. ...	5	4 0	286 $\uparrow$	29·05	189
„ Wokingham (Wellington Coll.)..	S. A. Saunder, Esq. ...	5	1 0	283 π	27·50	148
Hungerford (Denford Park)	General Cherry	5	1 2	430 $\uparrow$	32·35	221
„ Old Windsor (Friary Gardens)...	Mr. H. Tomlinson	5	0 10	100	25·96	106
Reading (Englefield)	R. Benyon, Esq.	5	1 1	...	26·51	171
„ „ (Russell Street)	Dr. Workman	5	2 0	154 π	25·62	167
„ „ (Portland Place)	C. N. Pearson, Esq. ...	8	2 6	122	29·98	201
„ „ (Forbury Gardens)	A. W. Parry, Esq., C.E..	5	1 5	145 π	24·67	171
„ „ (East Thorpe)	A. Palmer, Esq.	5	3 0	157 $\uparrow$	26·14	168
„ Newbury (Welford Park)	Mr. C. Ross	5	1 0	335 π	30·96	191
„ „ „ „ „ „	„ „	5	1 0	341 $\uparrow$	31·21	191
„ „ (Weston)	R. Osmond, Esq.	5	1 0	338 $\uparrow$	32·18	187
Yattendon	A. Waterhouse, Esq.	5	1 0	445	26·86	206
„ Lambourne (The Laburnums) ...	R. C. Mawley, Esq. ...	5	0 9	415 $\uparrow$	28·93	193
„ Maidenhead (Lowood)	Major-Gen. Davies ...	8	1 0	...	23·58	164
„ „ (Cookham Vic.)	Rev. R. W. Rogers ...	5	1 3	90 $\uparrow$	22·92	169
„ Shrivenham (Ashbury Vic.)	Rev. H. Miller	5	1 0	479 π	28·98	169
„ Wantage (Letcombe Regis)	S. W. Silver, Esq.	5	0 9	...	27·85	170
„ Wallingford Castle	J. Kirby Hedges, Esq..	5	0 9	175 π	23·69	154
„ Little Wittenham Rectory	Rev. Percy Burd	5	1 0	187 $\uparrow$	25·95	151
„ Long Wittenham	Capt. Clutterbuck	12	1 0	165 $\uparrow$	27·27	151
„ Faringdon (The Elms)	W. Dundas, Esq.	5	1 0	340 $\uparrow$	28·02	173

DIVISION III.—SOUTH MIDLAND COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth Rain.	Days on which -01 or more fell
		Diameter	Height Above Ground	Height Above Sea Level		
HERTS.						
D Southgate (The Lawns).....	G. A. Church, Esq.	5	0 6	240 T	30·42	200
D Rickmansworth (Moor Park).....	Rt. Hon. Lord Ebury ..	5	2 0	340	32·54	190
D† Watford (Watford House)	Dr. Brett.....	5	1 3	240 T	23·62	173
D† „ (Oaklands)	E. Harrison, Esq.	5	5 6	273 T	28·36	191
Barnet (Gas Works)	Registrar Gen. Ret.	...	...	212	24·43	162
D Cheshunt Old Nurseries	Messrs. Paul & Son ...	5	1 0	92 T	26·73	129
D „ College	Rev. Dr. Reynolds.....	5	1 1	94	28·28	150
D Broxbourne (Stafford House) ...	G. J. Newbery, Esq....	5	1 0	118 T	27·41	206
D Hemel Hempstead (Nash Mills)..	Messrs. J. Dickinson & Co.	12	3 9	237 T	27·76	164
D „ (Apsley Mills)	„ „ „ „	24	0 9	...	27·03	169
D St. Albans (The Grange)	J. Hopkinson, Esq. ...	5	1 0	380 T	28·29	194
„ (Torrington House)..	Miss E. A. Ormerod ...	5	1 0	280 T	27·31	...
† „ (Gorhambury)	Rt. Hon. Earl Verulam	6	2 6	425 T	26·48	115
D Great Berkhamstead (Rosebank)	E. Mawley, Esq.	8	1 0	401 T	26·36	202
„ „ („) M	„ „ „ „	8	1 0	401 T	26·11	...
D „ „ (Gt. Gaddesden)	Rev. W. Tyrwhitt Drake	8	1 0	426 T	26·48	184
Hertford (Bayfordbury)	W. C. Baker, Esq.	8	0 6	250	23·54	183
D Tring Vicarage	Rev. W. Quennell	5	1 0	442 T	28·05	205
D „ (Cowroast)	H. Thomas, Esq., C.E..	10	4 2	345 L	27·87	141
D Harpenden (Rothamstead)	Messrs. Lawes & Gilbert	5	0 9	420 T	27·48	174
„ „ { „ }	„ „ „ „	8	0 9	420 T	27·18	165
D „ „ { „ }	„ „ „ „	72x87	0 9	420 T	28·88	197
D Welwyn (Brocket Hall)	Mr. J. Landon	8	1 0	...	25·36	155
D Ware (Red House).....	J. Francis, Esq., C.E..	12	3 0	114 T	23·90	166
D „ (Fanham's Hall)	Miss Joyce Croft	8	1 0	253 T	25·21	168
D Welwyn Rectory	Rev. Canon Wingfield.	5	0 4	228 T	25·94	189
„ (Danesbury)	A. M. Blake, Esq.	5	0 9	405 B	29·90	156
D „ (Datchworth Rectory)..	Rev. J. Wardale	5	1 0	386 T	22·58	179
D Ware (Much Hadham)	T. W. Mott, Esq.	5	1 0	222 B	26·51	176
D Kensworth [Dunstable]	Miss Jones	5	1 0	630 B	26·48	154
D Bennington Lodge.....	Rev. Dr. Parker.....	5	1 0	408 T	23·99	210
D† Hitchin	W. Lucas, Esq.	5	2 1	238 T	22·08	182
„ (High Down)	J. Pollard, Esq.	5	1 1	422 T	23·23	168
D Buntingford (Throcking Rectory)	Rev. C. W. Harvey ...	5	1 0	484 T	22·87	178
D Stevenage (Weston Manor)	M. R. Pryor, Esq.	5	0 7	480 T	24·30	169
D Royston (Therfield Rectory).....	Rev. J. G. Hale	5	4 3	500 ?	24·89	169
D† „	H. Wortham, Esq.	8	0 6	269 T	21·63	156
BUCKINGHAMSHIRE.						
D Slough (Langley)	R. H. Major, Esq.	8	0 10	85 T	24·39	169
D „ (Upton Park)	G. Bentley, Esq.	5	3 0	90 T	24·64	172
D Burnham (The Elms)	G. J. Williams, Esq....	5	3 0	182	23·32	123
D Cliveden	Mr. J. Ellam	8	1 0	...	25·69	180
Greenlands [Henley-on-Thames].	Rt. Hon. W. H. Smith M.P.	8	1 3	116	28·94	136
D Great Marlow.....	J. Ford, Esq.	8	1 3	...	25·62	148
„ „ (Cromwell House).	E. Clark, Esq., C.E. ...	5	2 0	103	24·68	...
High Wycombe	H. S. Wheeler, Esq....	8	0 9	253 T	24·17	...
Aylesbury (Serena Terrace)	J. Copcutt, Esq.	12	1 0	280 T	26·80	...

DIVISION III.—SOUTH MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which .01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
BUCKINGHAMSHIRE—(con.)						
Aylesbury (Mentmore)	J. Smith, Esq.	5	1 6	...	22·83	...
d† Winslow (Addington Manor) ...	E. Hubbard, Esq., M.P. ...	8	1 0	309 T	27·16	190
d† Buckingham (Adstock).....	J. E. S. Weston, Esq... ..	5	0 9	350 T	26·71	185
d Stony Stratford (Thornton)	Mr. W. Sturdy	5	1 6	...	25·64	152
Woburn Sands (Sandymount)... ..	C. P. Stuart, Esq.....	5	1 4	...	26·18	187
d Newport Pagnell	R. Littleboy, Esq.	5	2 0	196 T	23·03	157
Olney (Filgrave Rectory).....	Rev. J. Tarver	8	0 8	280	24·72	...
OXFORD.						
d Whitchurch Rectory	Rev. J. Slatter	10	1 0	150 T	24·48	168
Henley-on-Thames (Greys)	Rev. N. Pinder	5	1 8	370 T	26·23	...
d " " " (Assenton)....	Mr. J. Ratty	5	1 0	281	28·96	170
d Dorchester	Col. Blunt	5	2 0	169	22·61	134
d Abingdon (Culham)	Rev. F. C. Clutterbuck ..	5	1 0	200 T	26·28	166
d Watlington (Pyrton).....	Cecil Hamersley, Esq.. ..	5	1 0	351	26·35	174
d Abingdon (Nuneham Park)	E. W. Harcourt, Esq... ..	8	3 0	250	29·09	201
Thame (Aston Rowant).....	T. Taylor, Esq.	8	1 0	385 T	29·10	183
d Oxford (Potlands, Baldon) ...	Miss Clinkard.....	6	...	288	27·54	209
Filkins [Lechlade]	Rev. H. C. Sturges ...	5	1 0	281 T	26·61	...
d† Oxford {Mag. Coll. Laboratory}..	E. Chapman, Esq.	5	1 0	186 T	27·39	167
" " " " " " " "	" " " " " " " "	5	33 11	223 T	23·39	...
" " {Radcliffe Observatory}..	E. J. Stone, Esq., F.R.S. ..	8	1 8	210 T	27·20	184
d " " " " " " " "	" " " " " " " "	11	2 4	210 T	28·19	160
" " " " " " " "	" " " " " " " "	10	22 0	230 T	26·84	157
" " " " " " " "	" " " " " " " "	10	112 0	320 T	18·08	173
d " (St. Giles')	A. R. Tawney, Esq. ...	8	1 6	210 T	28·22	192
d " (Norham Road).....	Rev. C. B. Mount	10	1 2	220 ?	30·86	176
d " (Elsfield)	H. Parsons, Esq.	6	1 0	330	28·65	193
Stanton St. John's... ..	Miss Thomson.....	8	1 0	340	26·37	163
" " " (Woodperry)..	J. Thomson, Esq.	6	1 0	399	28·17	190
Witney (Ringwood Farm)	Mr. J. W. Abraham ...	5	5 0	...	29·46	166
Chipping Norton (Kingham).....	E. Lockwood, Esq. ...	5	4 0	442	29·53	...
d Bicester (Middleton Park)	Mr. B. Hope	5	2 6	380	28·14	176
Steeple Aston.....	B. S. Ogle, Esq.	5	0 3	400 T	29·44	193
d " " (The Grange).....	Adl. Bradshaw, C.B....	8	1 0	400 T	29·57	184
d Banbury (Bloxham Grove)	Rev. G. Warriner	8	3 10	387 T	28·97	147
d " (Cotefield, Bodicote) ...	T. E. Cobb, Esq.	8	2 0	383 T	28·24	178
d " (Swalcliffe Park)	G. H. Norris, Esq.....	5	1 0	522 T	31·49	184
NORTHAMPTON.						
Brackley	Mr. E. Durran	8	6 10	400 T	28·46	160
d Chacombe House [Banbury].....	Major H. C. Norris ...	5	1 0	470 T	28·02	162
d Thorpe Mandeville [Banbury] ...	Mr. S. Baines.....	5	1 0	530	27·28	170
d Towcester (Whittlebury)	W. S. Miller, Esq.....	5	1 6	350	27·91	170
d " " " " " " " "	P. Phipps, Esq.	5	1 0	290	25·92	148
" " (Easton Neston)	Mr. E. Slarke.....	8	1 0	340 T	27·48	153
d Stoke Bruerne Rectory.....	Rev. W. Wilson.....	8	1 0	320 T	24·01	172
Blisworth	H. Terry, Esq.	...	...	...	32·21	159

DIVISION III.—SOUTH MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which 01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
NORTHAMPTON—(con.)						
D Litchborough	E. Grant, Esq.	5	1 1	...	30·56	186
Northampton (Preston Deanery) ..	H. Terry, Esq.	5	1 0	...	22·99	165
D Daventry (Fawsley)	Lady Knightley	5	1 0	477 B	24·56	184
Weedon (Floore)	Sir E. G. Loder, Bt. ...	5	1 6	270	25·59	157
Castle Ashby	R. G. Scriven, Esq. ...	5	1 0	263 A	23·26	181
D Northampton (Little Houghton) ..	Mr. J. Brawn	5	2 4	...	22·51	160
D „ (Agnes Road) ...	The late F. Law, Esq. .	5	5 0	245 T	23·51	171
D „ (Hazlewood Road) ..	H. Terry, Esq.	5	5 0	253	22·40	166
D „ (Gold Street)	Mr. S. Law	5	6 6	230 A	22·22	160
D Great Brington (Althorp House) ..	C. S. Groom, Esq.	8	3 10	310 A	26·49	175
D Pitsford (Sedgebrooke)	C. A. Markham, Esq. ...	5	1 0	311 A	24·83	181
„ „ „ „ „ M	„ „ „ „ „	5	1 0	311 A	24·53	...
D Daventry (Waterloo)	F. F. Rodhouse, Esq. ...	5	1 3	436 A	28·10	194
Earls Barton Vicarage	Rev. R. R. Cobbold ...	5	1 4	280 T	20·02	191
D Holdenby Rectory	Mr. C. Bond	5	1 6	...	26·73	185
D Wellingborough (Swanspool) ...	N. P. Sharman, Esq. ...	5	0 2	155	23·92	185
D „ (Croyland Abbey) ..	E. Sharman, Esq.	5	0 3	...	24·36	194
D Thrapstone (Hargrave)	J. L. Baker, Esq.	5	1 0	219 A	23·36	144
D Ravensthorpe (Coton Mill)	G. S. Eunson, Esq. ...	5	1 0	360	26·42	161
Hazelbeach Hill	Mrs. Pell	5	3 0	566 T	25·98	163
D Kettering	J. Wallis, Esq.	8	1 3	300 B	23·97	162
D „	C. W. Lane, Esq.	5	0 8	280	24·51	191
Rothwell	J. More, Esq., M.D. ...	12	1 2	300	24·62	146
D Oundle (Pilton Rectory)	Rev. F. G. Hodgson ...	5	1 0	130	24·47	164
„	J. M. Siddons, Esq. ...	5	4 6	105 T	22·46	...
D Rockingham Castle	Mr. H. Watt	5	2 6	400 L	26·39	124
D Easton [Stamford]	Mr. H. Watkins	5	0 11	271 T	20·65	169
D Maxey Vic. [Market Deeping] ..	Rev. W. D. Sweeting ...	5	1 0	32 A	21·97	195
„ „ „ „ „ M	„ „ „ „ „	5	1 0	32 A	21·78	...
HUNTS.						
D St. Neots (Tetworth Hall)	Mrs. Kaye	5	0 8	190 A	22·28	185
D „ (Waresley Park)	Lady C. Duncombe ...	5	0 11	...	23·35	160
D Alconbury	Rev. R. Conway	5	1 0	...	23·08	171
Wistow	Rev. T. Woodruff	5	1 1	...	22·48	133
Whittlesea Mere	R. Lunn, Esq.	8	1 0	...	22·97	176
BEDFORD.						
Luton	W. H. Leete, Esq.	5	1 0	344 T	23·85	192
Amphill (Silsoe)	H. Trethewy, Esq.	5	1 0	214 T	26·28	167
„ (Wrest Park)	Mr. G. Ford	5	1 1	...	24·23	...
D Aspley Guise (Oaklands)	E. E. Dymond, Esq. ...	5	1 1	410 T	23·65	172
Woburn (Experimental Farm) ..	Mr. F. E. Fraser	8	3 8	...	23·94	...
D Stotfold [Baldock]	Dr. Swaine	5	1 0	220	21·50	194
Amphill	Mr. J. Brown	5	1 0	313 T	23·68	179
D Woburn (Hulcote Rectory)	Rev. B. Chernocke Smith	5	1 0	310	24·17	130
Biggleswade (Langford)	F. J. Gurney, Esq. ...	5	1 0	106 T	19·88	164
„ (Old Warden)	Mr. G. R. Allis	8	1 2	...	21·61	139

DIVISION III.—SOUTH MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
BEDFORD—(con.)						
Biggleswade	C. T. Newbery, Esq. ...	5	28 0	130 †	19·28	...
D Potton (Wrestlingworth)	H. J. King, Esq.	5	1 0	...	20·19	172
Cardington	(Staff gauge) Miss McLaren	12	3 6	109	22·91	134
D Sandy Rectory	Rev. J. Richardson ...	5	0 7	...	22·77	145
D „ (The Lodge)	Rt. Hn. A. W. Peel, M.P.	5	1 0	...	21·28	162
Bedford (Western Street)	D. Robie, Esq.	5	0 8	112 †	22·93	152
„ (Kimbolton Road)	Col. C. K. Brooke	8	1 10	133	22·96	...
„ (St. Peter's Parish)	Mr. W. Godfrey	5	0 8	114 †	23·58	...
„ (Clapham Park)	Miss Howard	8	1 0	220 †	21·26	173
Tempsford Hall	Col. W. Stuart	5	0 9	80 †	21·56	178
Bedford (Milton Ernest)	F. Newbery, Esq.	5	5 0	130 †	22·77	119
D Podington [Wellingborough] ...	R. Orlebar, Esq.	5	1 0	256 †	23·12	167
CAMBRIDGE.						
D† Guilden Morden [Royston]	J. G. Johnson, Esq. ...	5	1 2	106 †	20·89	155
Trumpington	F. Parsons, Esq.	6	1 0	...	21·85	174
D Granchester Mill	J. Nutter, Esq.	5	5 0	31 †	21·22	189
D Cambridge (Fulbourn Asylum)...	Dr. G. E. Crallan	5	0 10	70 †	21·07	146
D „ (W. W. Cherryhinton)	W. W. Gray, Esq., C.E.	5	1 0	35 †	18·71	209
D „ (Beech House)	J. Nutter, Esq.	8	4 0	40 †	18·85	180
D „ (Sidney Street)	Mr. W. E. Pain	8	60 0	92 †	17·19	190
D „ (Trinity College) ...	J. W. Glaisher, Esq. FRS	8	0 6	40	18·94	180
Hardwicke	Rev. J. S. Brown	5	0 7	...	22·31	146
D† Cambridge Observatory	Professor Adams, F.R.S.	5	1 0	84 †	20·34	162
„ „ „	„ „ „	8	1 0	84 †	20·00	162
Quy Hall	Mrs. Francis	5	0 5	...	20·37	181
Papworth Hall	Rev. E. Cheere	5	1 0	158 †	22·69	161
D Ely (Stretham)	Mr. J. Housley	9	4 9	13 †	20·79	169
D „ („ Ferry)	Mr. C. Wright, Junr. ...	8	5 0	...	19·68	157
D „ (Littleport Vicarage)	Rev. Canon Hopkins ...	5	1 0	68 †	19·88	180
D Chatteris (Aylesby House)	A. H. Ruston, Esq. ...	8	0 6	45 †	21·81	156
D „ (The Priory)	H. F. Fryer, Esq.	5	0 5	45	22·69	155
„ (Horseway Lock)	R. Lunn, Esq.	...	...	...	18·65	177
March	„ „	...	...	...	23·54	...
Stanground Sluice	„ „	8	1 0	...	20·38	113
* March (Stags Holt)	W. C. Little, Esq.	5	1 0	11 †	22·06	...
Upwell (Marmont Priory Lock) ..	R. Lunn, Esq.	8	1 0	...	21·52	202
D „ (Euximoor House)	H. West, Esq.	5	0 8	15 †	22·40	157
D Thorney (Wryde House)	S. Egar, Esq.	9	2 3	12 †	19·24	131
Wisbech (Coldham Hall, Elm) ...	H. J. Little, Esq.	5	1 0	15	22·37	156
D „ (Bank House)	A. Peckover, Esq.	8	0 8	6	21·13	162

DIVISION IV.—EASTERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
ESSEX.						
D Shoeburyness	The Asst. Super. Expts.	8	7 3	18	22·36	185
D Southend (Avenue Road)	C. J. Holthouse, Esq...	5	3 0	110	25·10	151
„ (Water Works)	C. S. Bilham, Esq. ...	8	1 0	112 1	24·16	171
Ilford, Little	Rev. A. Shadwell	10	1 0	27 7	27·96	135
„ (Great Gearies)	Mr. J. Douglas	5	1 0	120	29·25	144
D Woodford (The Harts) ...	Miss C. Spicer	5	3 6	203 7	30·26	170
D „ (Hagger Lane)	W.B. Bryan, Esq., C.E.	8	1 0	176 7	25·46	121
Brentwood (Sawyer's Hall Farm)	Rogers Field, Esq., C.E.	5	1 0	270 7	30·83	120
D „ (Dudbrook House) ...	Mr. W. Dellar	8	1 3	...	34·04	141
D Ingatestone (Coptfold Hall).....	L. J. Petre, Esq.	5	1 0	246	28·36	169
Maldon (Norton Hall)	C. Clarke, Esq.	5	2 6	130 7	24·05	129
D Waltham Abbey (Gunpr. Factory)	Col. W. H. Noble	8	4 0	70	26·78	131
Epping (The Hemnalls)	J. Nicholl, Esq.	8	0 8	345	38·27	151
D Bradwell-on-Sea (Bradwell Hall)	J.C. Chillingworth, Esq.	5	1 1	...	22 46	137
„ „ (Down Hall).....	R. Page, Esq.....	5	1 0	20	21·78	118
Chelmsford (Great Baddow).....	H. Corder, Esq.....	5	0 6	...	27·06	...
D „ (Writtle).....	E. Rosling, Esq.	5	1 0	140 7	24·42	148
„ (High Street).....	F. Chancellor, Esq. ...	8	1 0	86 7	24·92	156
D „ (Roxwell)	R. W. Christy, Esq....	5	1 0	176 7	26·81	147
„ (Broomfield)	W. Impey, Esq.....	5	1 4	144 7	26·85	...
D Harlow (Sheering).....	Rev. Canon Hill.....	5	1 0	214 7	25·81	172
Witham (Little Braxted Hall)...	J. Taber, Esq.	5	1 0	50	25·49	164
„ (Rivenhall)	Rev. F. B. H. Bridges	5	1 0	138 7	29·09	...
D Dunmow (High Roding)	Rev. E. Maxwell	5	1 0	252 7	25·92	189
Great Bentley (The Lodge)	Capt. W. Delf.....	6	0 6	150	22·68	139
D Colchester	H. Goodyear, Esq.....	8	3 0	68 7	23·40	173
„ (Surrey Villa)	J. C. Hopwood, Esq. ...	5	1 0	110 7	26·02	155
D Braintree (Bocking Place).....	S. Courtauld, Esq....	8	2 0	212 7	26·02	148
Dunmow (Saling Grove)	J. N. Harrison, Esq. ...	8	1 0	290	25·99	120
Earls Colne (Chalkney House)...	H. F. Hills, Esq.	5	1 0	180 7	26·56	137
D Dedham (The Rookery)	W. H. Penrose, Esq....	8	1 0	43	22·80	173
Langham Rectory	Rev. T. S. Raffles	5	1 0	134	22·30	182
D Saffron Walden (Newport)	Rev. G. F. Tamplin ...	5	4 0	220 7	24·47	177
D „ „	J. G. Bellingham, Esq.	5	1 0	179 7	22·86	196
SUFFOLK.						
D Nayland (Tendring Hall)	Mr. G. L. Rushmore ...	8	0 8	135 7	25·26	115
Stutton (Alton Hall)	J. South, Esq.	5	1 2	...	19·93	...
D Ipswich (Woolverstone)	Rev. G. B. Hooper ...	8	1 0	...	23·46	188
D „ (Orwell Park)	Mr. J. Wallis	8	1 0	60 7	24·69	181
D „ (Belstead Hall)	A. Harwood, Esq.	8	9 0	120 7	22·02	145
D Sudbury	E. Ransom, Esq.	5	1 7	93 7	23·05	193
D „	J. Alexander, Esq. ...	5	1 2	120	22·81	184
Ipswich (Bishop's Hill).....	G.A. Biddell, Esq., C.E.	5	1 0	104 7	24·79	...
„ (Playford).....	M. Biddell, Esq.....	5	2 6	120 7	25·76	...
Lavenham Hall	W. Biddell, Esq., M.P.	5	1 11	220 7	26·00	132
D Woodbridge (Bank House)	S. Alexander, Esq. ...	5	1 0	...	26·08	166
„ (The Cedars, Melton) ...	W. P. T. Phillips, Esq.	5	...	...	26·38	...

DIVISION IV.—EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which .01 or more fell.
		Diameter	Height Above Ground.	Height Above Sea Level		
			ft. in.	feet.	inches.	
SUFFOLK—(con.)						
d Swilland Vicarage	Rev. J. Wickham	5	1 0	...	24·68	185
d Rendlesham Hall	RtHonLrd.Rendlesham	5	1 9	88 N	25·77	158
d Haverhill (Great Thurlow)	Mr. A. Boa.....	5	1 0	241 T	22·57	172
Clare (Stansfield)	J. Slater, Esq.	5	1 2	...	23·95	...
Ash Bocking Vicarage	Rev. M. B. Cowell.....	5	7 3	231 T	22·28	145
d Aldborough (Aldringham Ho.)..	F. Garrett, Esq.....	8	4 5	50 B	24·24	195
d Stowmarket (Wetherden Rec.)....	Rev. C. J. Goodhart ...	8	0 6	185 N	23·89	157
d BurySt.Edmunds(DrinkstonePk)	Mr. G. Palmer	8	1 2	220 T	23·34	165
d Framlingham (Mount Pleasant)..	Mr. R. Whitehead.....	5	1 2	...	28·65	153
d BurySt.Edmunds	Mr. F. Summers	...	...	...	17·87	153
† " , (Westley)	R. Burrell, Esq.....	5	1 0	226 N	24·61	...
d " , (Hengrave)... ..	Mr. W. Nichol	5	1 2	...	21·39	111
d† " , (Culford).....	Mr. T. W. Dell	5	1 6	100	23·28	128
d Ixworth (Walsham-le-Willows).	Miss M. C. Martineau..	5	1 0	...	25·79	167
Stradbroke Vicarage	Rev. Dr. Tate.....	5	2 2	...	27·31	...
†Ixworth (Barningham)	W. Lingwood, Esq. ...	8	1 0	136 T	25·82	...
d Weybread Vic. [Harleston].....	Rev. J. H. White	8	1 1	159	24·17	166
d Beccles (Sotterley Hall)	Col. St. J. Barne, M.P.	5	0 11	...	27·13	193
Lowestoft (Gisleham)	Rev. H. Jodrell	5	1 0	36 T	23·84	...
† " (Carlton Colville).....	G. Edwards, Esq., C.E.	8	0 9	6 T	25·55	...
d " (Bryn-y-Môr)	S. H. Miller, Esq.	5	1 0	86	23·87	185
" (") M	.....	8	1 0	86	23·58	...
d " (The Clyffe, Corton)...	J.J.Colman, Esq., M.P.	5	4 0	65 L	25·09	191
" (Somerleyton Rect.)...	The Royal Meteor. Soc.	8	1 0	50	23·82	176
NORFOLK.						
d Diss	T. E. Amyot, Esq.....	5	1 0	96	26·34	171
d Harleston (Rushall Vicarage) ...	Rev. C. Gape	5	1 1	117 N	23·11	184
d North Lopham	Mrs. Pitt	8	1 2	...	23·54	180
Brandon (Santon)	Rev. Canon Du Port...	...	...	...	23·12	...
d†Geldeston [Beccles]	E. T. Dowson, Esq. ...	5	1 0	38 N	22·18	191
" "] M	" " "	8	1 0	38 N	22·54	...
d " "]	R. Dashwood, Esq.....	5	1 0	45 T	22·85	167
Ellingham ["]	H. Youngman, Esq. ...	5	3 6	...	22·46	...
d Long Stratton (Boyland Hall)...	Mrs. Irby	5	0 3	...	26·55	125
Saxlingham Nethergate	E. Knight, Esq.	5	1 2	...	22·41	...
d Doddon (Bergh Apton)	Rev. T. F. Lloyd	8	2 4	...	24·54	170
Mulbarton	Rev. R. G. Lucas	5	1 4	...	25·55	...
Watton	Rev. Canon Du Port ...	...	...	...	23·23	...
Hingham .....	.....	...	...	...	25·66	...
d Downham Market (W. Dereham)	Mr. C. Blanchfield.....	5	0 11	20	23·25	182
d Denver	Rev. Canon Du Port...	8	1 2	80 N	22·86	168
d Stoke Ferry (Wereham)	" " "	5	6 0	66	20·07	155
Wymondham (Hetherset)	" " "	...	...	...	26·26	...
d Downham (Crimplesham)	W. S. Horn, Esq.	5	1 0	110 T	22·44	177
Swaffham (Pickenham Hall) ...	E.A.Applewhaite Esq.	5	1 0	104 N	23·55	166
Outwell Sluice	R. Lunn, Esq.	9	...	16	21·56	121
Yarmouth (Sailors' Home)	The Meteor. Council ...	8	4 0	12	22·09	200

DIVISION IV.—EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
NORFOLK—(con.)						
D Yarmouth	W. C. Steward, Esq. ...	5	1 0	...	25·11	155
„ (Halvergate Hall) ..	Rev. Canon Du Port ...	5	3 3	48 A	22·15	...
Norwich (Postwick)	„ „ „ „ „ „ „ „	...	...	...	24·71	...
D „ (Carrow House)	J. J. Colman, Esq., M.P. ...	5	4 0	30	23·43	113
† „ (Thorpe High House) ..	W. Birkbeck, Esq. ...	5	1 0	137 T	24·84	192
D „ (Essex Street)	F. Dix, Esq.	9	2 6	85 T	24·29	171
„ (Newmarket Road)	Rev. Canon Du Port ...	...	...	...	25·58	...
„ (Heigham)	J. H. Everitt, Esq. ...	5	3 2	37 A	23·47	200
† Acle	Rev. R. W. Kennion ...	8	0 9	40	23·58	132
D*Swaffham (Grammar School) ..	C. J. Drury, Esq.	5	1 10	242 A	23·49	182
D „	W. H. Plowright, Esq. ...	5	5 0	250 A	22·92	180
D Costessey	A. J. Culley, Esq.	5	1 0	...	21·94	158
D Sprowston (Oak Lodge)	T. Cozens Hardy, Esq. ...	5	1 0	101 A	23·75	199
East Dereham	G. H. Cooper, Esq. ...	8	3 0	161	24·82	142
„ „	Rev. Canon Du Port ...	...	...	...	22·41	...
Drayton	„ „ „ „ „ „ „ „	5	1 2	...	20·67	...
D Swaffham (Dunham)	„ „ „ „ „ „ „ „	5	1 1	320	25·09	186
Acle (Oby)	„ „ „ „ „ „ „ „	5	1 5	45 P	23·72	...
Salhouse	„ „ „ „ „ „ „ „	...	...	...	23·82	...
Wiggenhall (Outlet Syphons) ..	R. Lunn, Esq.	8	...	...	22·32	141
D Terrington	J. T. Seccombe, Esq., M.D. ...	5	1 0	15 A	22·93	144
D Felthorpe	Mrs. Bouchier	5	1 1	75	22·34	130
D Bylaugh Park Gardens	Mr. A. Fenn	5	1 0	130 T	27·24	194
D Reepham (Whitwell)	Rev. W. H. Freeman ...	8	1 2	120	22·91	181
Cawston	Rev. T. H. Marsh	5	1 0	135 T	25·27	221
Aylsham (Woodgate)	B. J. W. Purdy, Esq. ...	5	1 0	100 T	27·59	204
North Walsham (Dilham)	Rev. Canon Du Port ...	...	...	...	25·79	...
D†Hillington School	Rev. H. Ffolkes	5	3 6	94 A	26·17	200
Fakenham (Pensthorpe)	Rev. Canon Du Port ...	...	...	...	26·11	...
„ (Croxtan)	„ „ „ „ „ „ „ „	...	...	...	22·54	...
Cromer (Northrepps)	„ „ „ „ „ „ „ „	...	...	...	27·85	...
Holt (Letheringsett Hall)	W. Cozens Hardy, Esq. ...	8	1 0	...	26·29	137
Cromer	J. Cooper, Esq.	5	1 0	100	27·73	148
D Holkham	J. Davidson, Esq.	12	4 0	39	19·93	111
„ „ „ „ „ „ „ „	„ „ „ „ „ „ „ „	8	1 0	35	22·41	...
Hunstanton Hall	Mr. Nisbet	11	3 8	60 A	21·39	...

DIVISION V.—SOUTH WESTERN COUNTIES.

WILTS.

D Landford	J. R. Wigram, Esq. ...	5	1 10	167 A	28·58	206
D Donhead St. Mary (Charlton Ho.)	Col. G. Best	5	0 7	514	34·68	203
D Broad Chalke	C. E. B. Hewitt, Esq. ...	8	0 8	315	31·19	180
D†Salisbury (Alderbury)	Rev. R. S. Hutchings ...	5	0 8	263 A	30·03	190
† „ (West Dean)	Rev. W. L. W. Eyre ...	5	1 0	137 B	29·69	184
D „ (Britford)	C. E. B. Hewitt, Esq. ...	5	1 0	...	31·16	196
D „	W. Hussey, Esq.	5	1 5	150 T	31·48	193

DIVISION V.—SOUTH WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which -01 or more fell
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
WILTS—(con.)						
Tisbury	C. Combes, Esq.	5	...	400	28·28	...
D Salisbury (Wilton House)	C. E. B. Hewitt, Esq. ...	8	0 5	180 ∇	31·97	217
D Mere	" " " "	5	1 0	...	37·89	173
D " Down	T. H. Baker, Esq.	5	1 0	702 $\uparrow$	38·43	223
D Winterslow	C. E. B. Hewitt, Esq. ...	5	1 0	470	30·64	158
D Maiden Bradley	" " " "	...	...	...	41·52	207
D Warminster (Rye Hill)	" " " "	8	2 0	450	39·16	204
D Amesbury	" " " "	5	1 0	...	27·70	190
Salisbury Plain (Chitterne House)	R. Hayward, Esq.	11	4 0	319 $\uparrow$	28·70	166
Warminster	E. Cruse, Esq.	5	1 0	387 ∇	34·04	197
D " (Downside)	C. E. B. Hewitt, Esq. .	8	4 0	393	35·96	209
D Amesbury (Figheldean)	" " " "	5	1 0	260	29·03	172
Ludgershall	Rev. W. H. Awdry ...	8	0 8	422 ∇	34·00	187
D " (Everleigh)	C. E. B. Hewitt, Esq. .	5	1 2	590	34·16	187
D " (Chute)	" " " "	...	...	...	32·14	178
D " (Conholt Park)	Lady C. Wellesley	5	1 0	750 $\uparrow$	33·34	195
D " (Collingbourne Kingston) ..	Baldwin Latham Esq CE	5	1 0	470 ∇	31·34	207
D Market Lavington	C. E. B. Hewitt, Esq. ...	5	1 0	...	29·99	173
D Trowbridge (Steeple Ashton Vic.)	" " " "	5	1 0	240 $\uparrow$	26·46	192
D " (Wingfield)	T. H. Clark, Esq.	5	1 0	190 $\uparrow$	29·86	176
D "	C. E. B. Hewitt, Esq. ...	5	1 2	...	28·30	187
D " (Rodney House) ..	W. J. Mann, Esq.	5	1 1	140	27·73	185
D Bradford	Miss Spencer	5	1 2	...	30·76	169
D "	C. E. B. Hewitt, Esq. ...	5	1 0	...	30·72	178
D " (Holt)	" " " "	...	...	...	31·88	229
Devizes (Southgate House)	B. H. Cunningham, Esq.	8	1 0	436 $\uparrow$	32 18	200
D Buttermere	C. E. B. Hewitt, Esq. ...	5	4 9	...	32·63	215
D Burbage (Wolfhall)	" " " "	8	1 0	546	30·83	144
D Shalbourne	" " " "	5	1 0	...	31·92	191
D Bishop's Cannings	Rev. C. W. Hony	5	1 0	446 ∇	31·79	197
D Great Bedwyn	C. E. B. Hewitt, Esq. ...	...	...	...	29·83	198
D Devizes (Shepherd's Shore)	" " " "	5	1 6	555	28·79	177
D Chippenham (Lacock)	Miss Awdry	5	0 11	250	30·60	209
D Marlborough	C. E. B. Hewitt, Esq. ...	...	...	...	28·13	195
D " (Mildenhall)	Rev. C. Soames	5	1 0	456	27·76	180
D Corsham	C. E. B. Hewitt, Esq. ...	5	1 0	350 ∇	31·70	197
D Calne (High Street)	Mr. H. Wilkins	5	3 6	244	30·37	202
D Ramsbury	C. E. B. Hewitt, Esq. ...	5	1 0	411	28·63	194
D Ogbourne Maizy	" " " "	5	1 0	...	27·69	180
D Broad Hinton	Rev. J. A. Lloyd	5	3 0	633 $\uparrow$	29·24	174
D Wootton Bassett	C. E. B. Hewitt, Esq. .	5	1 0	...	29·10	199
n† Swindon, New	F. G. O'Connor, Esq. ...	8	0 11	378	28·40	190
" (Pen Hill)	H. Arkell, Esq.	5	0 10	400	25·89	...
D Malmesbury (Charlton Cott.) ...	C. E. B. Hewitt, Esq. ...	...	1 0	...	33·80	185
D Highworth (Hannington) ..	" " " "	...	...	...	28·10	166

DIVISION V.—SOUTH WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which .01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
DORSET.						
Weymouth (Wyke Regis)	Mrs. Pretor.....	5	0 9	80 B	29·78	175
Swanage (The Bank).....	J. Andrews, Esq.	5	1 0	8	28·22	161
„	Rev. H. Pix	5	2 0	60	28·87	158
Weymouth	The Roy. Meteor. Soc. ..	5	1 0	80	28·97	168
D „ (Langton Herring)...	Rev. C. H. Gosset	8	1 0	200 ?	29·47	175
D† „ (Osmington Lodge)...	Col. Hall.....	5	1 0	242 A	32·06	178
D Corfe Castle (Creech Grange) ...	N. Bond, Esq.	5	1 2	180	38·41	145
D Wareham (Castle Gardens)	S. W. Bennett, Esq. ...	5	3 2	15	32·16	172
Little Bredy	Rev. R. R. Meadows...	5	1 0	353 T	40·04	162
Poole	F. Styring, Esq.	5	1 1	6	28·85	...
„ (The Yarrells)	„ „ „	5	1 1	40	29·80	...
D „ (Parkstone)	R. H. Barnes, Esq. ...	5	1 0	198 L	29·69	192
D Lyme Regis	M. C. Preston, Esq. ...	5	1 1	...	33·93	178
Bere Regis (Bloxworth Rectory)...	Rev. O. P. Cambridge..	8	1 0	...	34·36	148
D „ „ (House) ...	Col. Cambridge	5	2 0	100	33·69	104
D Maiden Newton (Cattistock Lodge)	A. Chapple, Esq.	8	1 0	400 B	41·30	187
D Beaminster Vicarage	Rev. Canon Codd	5	1 0	...	38·45	189
D Blandford (Whatcombe)	J. Mansel-Pleydell, Esq.	5	0 4	270	41·66	176
„ (Tarrant Keynston) ...	G. Galpin, Esq.	5	1 0	100 ?	31·70	...
D Cerne Abbas (Melbury).....	Mr. T. C. Elliott	12	2 9	...	36·92	124
D Beaminster (Chedington)	Miss Creed	5	1 6	604 A	43·64	204
D*Wimborne Minster (Chalbury)...	Rev. G. H. Billington..	5	2 0	338 A	28·46	177
Hazelbury Bryan Rectory	Rev. Canon Wheeler...	5	1 0	305 A	50·07	193
D Shaftesbury	T. Ackland, Esq.	5	1 4	722 A	33·82	186
D Gillingham	S. H. Stephens, Esq....	5	1 2	244 T	33·53	199
DEVON.						
Salcombe (Prawle Point)	The Meteor. Council ...	8	1 9	350	26·98	202
D „ (The Molt)	J. Drew, Esq.....	8	1 3	61 L	33·92	159
† Bolt Tail.....	G. Balkwill, Jun., Esq.	5	2 0	297	35·06	...
D Kingsbridge	W. H. Webb, Esq. ...	5	1 0	84	40·60	203
D Revelstoke (Membland)	Mr. G. Baker.....	5	1 0	200 T	39·29	168
D Dittisham (Chipton)	Mr. H. Bond	5	1 6	360 T	46·28	185
D Plymouth (Hobart Terrace) ..	J. Merrifield, Esq. LL.D.	8	9 2	130 A	36·95	193
D*Devonport (Rowdens Res.)	H. Francis, Esq., C.E.	5	1 0	201 A	33·84	208
D Brixham (Greenway)	J. Fewings, Esq.	5	0 9	130	38·25	168
„ (Lupton).....	Mr. J. Gibson.....	5	1 6	220 T	37·50	144
Plympton (Hemerdon)	Rev. G. L. Woollcombe	5	4 0	360	47·02	...
D Paignton (Madeira Cottage).....	P. Symons, Esq.....	5	8 0	20 T	34·14	168
D „ (Rosenville)	F. J. Greenfield, Esq...	5	7 0	28	36·79	187
Bere Ferrers	Rev. F. T. W. Wintle.	5	1 0	100	44·25	201
D Torquay (Strand)	C. Shapley, Esq.	5	4 0	40 L	30·77	170
D „ (The Rosery)	A. Chandler, Esq.....	5	1 0	36	37·49	176
D „ (Grey's Lodge)	Col. J. R. Currie	5	1 0	161	35·77	177
D† „ (Lamorna)	W. Pengelly, Esq. F.R.S	5	1 0	200 A	34·72	198
D* „ (Castle College)	C. J. Harland, Esq. ...	5	1 0	167 A	33·61	175
D† „ (Babbacombe) <i>Snowdon</i>	E. E. Glyde, Esq.	5	1 0	294 A	37·05	192
D „ (Watcombe Park)	Col. C. Ichabod Wright	5	1 0	500 T	37·61	174

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DIVISION V.—SOUTH WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which 401 or more fall
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
DEVON—(con.)						
D Tiverton (Broomhill)	Mrs. Dickinson	5	1 0	380	38·35	197
„ (Ivy Place, S. Peter's St.)	H. S. Gill, Esq.	5	6 0	270	36·80	209
Torrington (Beare Ho., Langtree)	Mr. J. Snow	5	1 0	451 A	41·96	198
„ (Stevenstone)	R. H. Lipscomb, Esq. ...	5	1 0	450	39·59	216
„ (Little Silver)	„ „ „	5	1 0	395 T	38·27	204
D Bampton (Huntsham)	Col. Troyte	8	1 0	600 B	45·17	222
D South Molton (Rose Ash)	Mrs. Davy	8	1 0	766 A	37·61	162
D Bideford (Heale House Littleham)	R. Sanders, Esq.	8	1 0	280 B	37·64	192
D Hartland Abbey	Mr. G. Sleep	5	1 6	222 T	39·86	186
D South Molton (East Street)	N. C. Hatherly, Esq. M. D.	5	1 0	430 B	42·42	209
„ „ (Castle Hill)	Mr. R. Nicholas	12	3 9	600	44·49	200
D Bideford (Water Works)	Baldwin Latham Esq CE	5	...	335 A	34·31	180
*† „ (Horwood)	Rev. J. Dene	5	1 0	288 T	35·57	207
D*† „ (Northam)	Rev. M. D. Churchward	5	1 0	173 A	35·48	202
D WestBuckland (Devon Cnty Schl.)	Rev. J. H. Thompson..	5	1 0	650	45·49	230
D Barnstaple	Mr. Knill	8	1 0	31 A	34·29	172
D „ (Pilton)	Miss Hibbert	5	1 0	40 B	39·54	212
D „ (Arlington Court)	Lady Chichester	8	1 1	613 B	48·56	228
Lynton (Parracombe)	Rev. J. F. Chanter ...	5	3 0	795 T	44·32	...
D† Ilfracombe Hotel	Mr. W. Tattam	12	9 0	34	28·05	187
† Lynton (Lee Abbey)	C. F. Bailey, Esq.	5	0 6	320	35·96	...
D† Lynmouth (Glenthorne)	Mrs. Halliday	5	0 9	93	39·99	187
CORNWALL.						
Helston	J. Gill, Esq.	8	...	...	37·64	158
Penzance (Penlee)	J. Branwell, Esq.	5	1 0	71 T	43·06	233
D „ (St. Clare)	Rev. Preben. Hedgeland	5	1 0	213 T	43·18	257
Marazion	T. W. Field, Esq.	5	2 0	30 P	40·06	206
Falmouth (New Observatory)	The Meteor. Council ..	11	2 0	169	40·45	209
D „ „ „	E. Kitto, Esq.	8	2 0	169	39·14	200
St. Just	R. B. Searle, Esq.	5	1 0	400	45·16	...
Falmouth (Carelew)	Mr. J. Simmons	5	0 9	...	46·12	166
D Redruth (Trevince)	E. B. Beauchamp, Esq.	8	0 8	240 T	46·90	220
D „ (Trewirgie)	A. H. Jenkin, Esq. ...	5	1 0	400 T	50·71	226
D „ (Tehidy Park)	Mr. A. Mitchell	8	1 1	287	43·52	201
D† Truro (Royal Institution)	Mr. Crowther	5	43 0	56 A	40·92	179
D „ (Penarth)	N. Whitley, Esq.	11	1 0	200 T	40·33	183
„ (Porthgidden)	Rev. Canon Phillpotts.	5	1 0	50	40·70	200
D Probus (Lamellyn)	H. Tresawna, Esq.	5	0 6	...	43·72	150
St. Agnes	Mr. Opie	5	1 3	278 B	40·73	182
St Austell (St. Mewan)	Rev. G. L. Woolcombe	5	1 0	275 T	50·73	...
D†* „ (Trevarna)	W. Coode, Esq.	5	0 6	300 A	47·69	229
Par Station (Penellick)	W. E. Geach, Esq. ...	5	0 9	240 T	33·17	...
Empacombe [Devonport]	S. Harvey, Esq.	5	1 6	20	34·58	194
D St. John's [Devonport]	Rev. J. H. Kirwan	5	1 0	20	35·11	191
D St. Germans (Catchfrench)	Miss Tatham	5	0 5	250	47·94	231
D Lostwithiel (Lanwithan)	Miss Foster	10	1 1	80	43·40	203
D† Liskeard (Dean Terrace)	S. W. Jenkin, Esq., C.E.	5	1 1	375 A	49·38	213

DIVISION V.—SOUTH WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which -01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level	1888	
CORNWALL—(con.)						
† Saltash (Pentillie Castle)	Mr. A. W. Cove.....	5	1 6	150 B	51·87	192
† Bodmin (Lanhydrock)	Rev. Prebendary Every	5	1 0	390	51·26	234
„ (Castle Street) ...weekly	Capt. Liddell, R.N. ...	5	0 1	315 T	51·89	...
† „ („ „)	„ „ „	5	1 0	316 T	50·93	235
† „ („ „)	„ „ „	5	1 9	317 T	48·35	235
† „ (Fore Street).....	Mr. A. Hambly	8	2 6	336 T	50·96	233
Liskeard (St. Cleer)	S. W. Jenkin, Esq., C.E.	5	1 1	620 A	42·22	...
† Callington (Hingston Down).....	Mr. Wadge.....	5	3 0	850 T	48·75	201
† Launceston (Altarnun)	Rev. A. H. Malan	5	1 0	570 B	54·78	232
North Tamerton [Holsworthy]..	Major Holt	5	0 10	500	38·13	211
„ Bude	J. Arthur, Esq.	5	1 0	16 B	30·80	159
SOMERSET.						
Chard (Cricket St. Thomas)	RtHn. Viscount Bridport	5	1 0	555	40·95	128
„ Crewkerne (Bincombe House) ...	F. J. Sparks, Esq.	5	1 2	250 T	34·00	137
„ Yeovil (West Coker).....	Major Aldworth	5	1 0	260 T	33·01	216
„ (Hendford).....	J. Curtis, Esq.	5	1 1	...	30·82	144
„ Ilminster (White Lackington) ...	Rev. Prebendary Gworing	5	1 0	136 A	37·37	209
„ (Ilton Vicarage).....	Rev. R. B. Poole	5	1 3	100 A	33·62	208
„ South Petherton	W. Blake, Esq.	8	0 8	110 T	32·29	200
„ Temple Combe (Stowell Rect.)...	Rev. H. J. Poole	5	3 0	376 B	33·95	...
„ „ („ „)	„ „ „	8	1 0	376	34·87	211
„ Milverton	J. H. Bere, Esq.....	5	1 0	198	34·50	194
„ (Halse)	J. D. Hancock, Esq. ...	5	1 1	200 T	32·82	179
„ (Fitzhead Court) ...	J. E. Knollys, Esq. ...	5	1 0	297 T	35·81	158
„ Taunton (Lydeard House).....	C. Smith, Esq.	5	1 0	185 A	33·02	184
„ Cothelston House	C. E. J. Esdaile, Esq... ..	5	1 0	500	36·22	201
„ Wiveliscombe (Willett House) ..	J. Blommart, Esq.....	5	0 7	390 T	44·02	140
„ Somerton (Butleigh Court)	R. Neville Grenville, Esq	8	1 2	80	30·62	160
„ Glastonbury (Street).....	W. S. Clark, Esq.	8	1 0	70	31·26	213
„ (High Street)	J. Spire, Esq.....	8	34 0	122 T	29·55	155
„ „	Major Swayne	5	1 8	245 T	30·85	175
„ (Magdalene House)	J. G. L. Bulleid, Esq.. ..	5	1 6	52 T	28·99	173
„ Exford Rectory	Rev. Prebendary Howes	7	1 0	902 A	46·09	244
„ Bridgwater (Victoria Terrace)...	H. Corder, Esq.	5	0 6	...	29·97	...
„ (Ashford)	G. B. Laffan, Esq.....	5	1 2	80	36·35	175
„ Wells	Mr. R. J. Manning ...	5	44 0	181 T	33·22	186
„ (Garden)	„ „ „	5	1 3	139 T	33·27	186
„ (Westbury)	Rev. Clement Alford ...	5	1 0	145 T	35·77	183
„ Porlock (Ashley Combe)	The Earl of Lovelace... ..	6	0 6	200	39·69	...
„ Frome (Mells Rectory)	Rev. G. Horner	5	1 0	344 A	39·15	211
„ (Rock House, Mells).....	W. A. Fussell, Esq. ...	7	2 4	326 A	38·14	205
„ „ „	„ „ „	5	7 6	331 A	35·87	205
„ Chewton Mendip (The Priory)...	Mr. J. Batt	5	1 5	550 T	44·99	167
„ Ston Easton	H. E. Hippisley, Esq... ..	5	3 0	480 A	41·63	198
„ E. Harptree (Sherborne Reservoir)	Bristol Water Works... ..	5	1 0	338 T	38·17	193
„ (Harptree Court) ...	W. W. Kettlewell, Esq. ...	5	1 0	346 A	43·26	200
„ Axbridge (Winscombe).....	Rev. R. F. Follett	8	1 0	200 T	33·99	151

DIVISION V.—SOUTH WESTERN COUNTIES—*continued.*)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
SOMERSET—(con.)						
D Pensford (Sutton Court)	Sir E. Strachey, Bt. ...	8	1 0	...	39·14	203
Weston-super-Mare (High St.)..	The Roy. Meteor. Soc.	5	1 0	20	28·58	189
D " " " (Worle Vic.)	Rev. W. F. Rose	5	1 0	16	31·70	188
" " " (Kewstoke)	Rev. S. G. Gillum	5	0 10	50 ?	31·81	191
Chew Magna	Bristol Water Works...	5	1 0	160 †	37·76	190
D† Bath (Royal Literary Institute).	Mr. E. A. Baker	6	8 0	75 †	34·32	163
D Batheaston Reservoir.....	C. Gilby, Esq., C.E. ...	6	2 0	248 †	33·13	192
Yatton (Chelvey)	Bristol Water Works...	7	10 0	...	33·79	163
Barrow Gurney Reservoir.....	" " "	5	1 0	320 †	38·98	202

DIVISION VI.—WEST MIDLAND COUNTIES.

GLOUCESTER.

Bristol (Small Street)	Bristol Water Works... 12	33	10	52	29-98	166
D† Clifton (South Parade)	Dr. G. F. Burder 8	1	0	192 A	34-51	174
D Bristol (Shirehampton).....	Rev. C. O. Miles 5	2	0	115	33-58	202
D „ (Over Court) Park.....	R.C.C. Lippincott, Esq.. 5	1	0	148 T	33-82	209
D „ { „ „ } Garden ...	„ „ „ „ „ „ 8	0	8	137	33-67	209
ChippingSodbury(FramptonCotl)	J. Marsh, Esq. 5	1	0	180 A	31-53	166
D „ „ (StanshawesCt)	R. N. Hooper, Esq. ... 5	1	3	280 A	34-33	178
D Wickwar Rectory	Rev. R. J. Lyon ... 5	1	0	260 A	32-97	200
D Dennel Hill [Chepstow]	Major Cowburn 8	1	0	573 A	38-90	193
D Wirewoods Green [Chepstow] ..	Godfrey Seys, Esq. ... 8	0	10	220	36-96	191
D Fairford (Kempsford)	R. A. Iles, Esq. 5	0	8	...	26-72	161
D Berkeley (Salter Street)	H. E. Cooke, Esq. 5	6	0	60	30-35	194
D „ (Sharpness New Docks)	W.B.Clegam, Esq., C.E 5	3	6	50	30-39	182
D Lechlade	T. Arkell, Esq. 5	0	10	253	26-44	179
D Minchinhampton (The Close) ..	Major Pennington..... 8	1	0	582	35-63	211
D Cirencester (Claremont Place) ...	R. Gorton, Esq. 8	1	0	356 T,	32-00	203
„ { „ „ } ...	„ „ „ „ „ „ 8	2	0	357 T,	32-96	203
„ { „ „ } ...	„ „ „ „ „ „ 8	0	6	356 T	32-07	203
„ { „ „ } ...	„ „ „ „ „ „ 8	11	0	366 T:	28-50	203
D „ (Royal Agricultural Coll.)	A. G. Bloxam, Esq. ... 5	1	0	443 A	30-08	181
D „ (Further Barton)	Miss Brown 5	1	0	425	31-35	194
D Stroud (Upfield).....	Miss Stanton 5	1	0	226 A	32-78	187
D Fairford (Hatherop Rectory) ...	Rev. R. P. Davies 8	1	3	411 A	28-54	158
D Frampton-on-Severn(SaulLodge)	W.B.Clegam, Esq., C.E 5	3	6	42 A	29-06	209
D Coleford (The Coombs)	I. Trotter, Esq. 5	1	0	660	45-20	209
D Newnham-on-Severn.....	D. J. Wintle, Esq. 5	0	3	56 A:	37-81	144
D Great Barrington [Burford]	B. W. Mason, Esq. 8	1	0	416 T	29-02	152
Northleach (Yanworth).....	T. Arkell, Esq. 5	1	0	...	31-86	165
„ (Sherborne Park)	Mr. Scott 5	1	0	405	30-35	104
D* „ (Hampanett Rectory)..	Rev. W. Wiggin 5	1	0	653 A	28-09	194
Gloucester (Quedgeley House)...	W. G. Robinson, Esq.. 5	1	0	65 T	29-76	193
D „ (Birdlip Hill)	A. S. Helps, Esq. 5	1	0	800 B	32-95	196
D „ (Witcombe Res.).....	R. Read, Esq., C.E. ... 8	3	0	297 A	30-41	169

DIVISION VI.—WEST MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which 101 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
GLOUCESTER—(con.)						
D Gloucester (Llanthony Lock) ...	H.J. Marten, Esq., C.E.	5	1 2	39 π	26.11	177
D „ (Denmark Road) ...	W. B. Wood, Esq. ...	8	3 0	66	27.01	190
D „ (Lower Barton Street) ...	W. P. Brown, Esq. ...	5	1 0	65 π	27.08	191
D Mitcheldean (Edge Hill House)..	W. H. M. Phillips, Esq.	5	1 6	725 π	37.11	192
D Gloucester (Maisemore Lock) ...	H.J. Marten, Esq., C.E.	5	1 1	39 π	26.96	238
Bourton-on-the-Water	Miss Coles	5	1 6	435 π	32.58	138
D Cheltenham (Battledown)	Sir Brook Kay, Bt. ...	5	0 8	393 π	27.06	189
„ (Northfield)	W. McLandsboro', Esq.	8	2 0	520	31.60	173
„ (Hewletts Res.) ...	„ „ „	8	0 9	400	29.89	173
„ (Sandford Mead) ...	„ „ „	5	2 0	210	26.96	147
„ (Heath Lodge) ...	Rev. M. A. Smelt	8	1 0	206	28.82	178
„ (Montpellier Lodge) ...	Rev. Dr. Kynaston ...	5	1 0	210	29.36	...
D „ (Southam Villa) ...	R. Tyrer, Esq.	5	1 0	184 π	28.85	195
„ („ „) M	„ „ „	5	1 0	184 π	26.55	...
D Moreton-in-Marsh (Longborough)	W. Arkell, Esq.	5	0 9	...	33.34	200
D Tewkesbury (Upper Lode)	H.J. Marten, Esq., C.E.	5	1 0	41 π	25.17	197
„	W. McLandsboro, Esq.	5	0 9	44	23.26	176
D „ (Beckford)	F. Slade, Esq., C.E. ...	8	1 0	120 π	25.28	195
Alscot Park [Stratford-on-Avon]	Mr. T. B. Wilson	5	1 3	...	24.37	191
HEREFORD.						
Wyastone Leys [Monmouth] ...	J. M. Bannerman, Esq.	6	1 0	200 B	35.56	195
Ross (Pontshill)	W. E. Hancock, Esq. ...	8	2 0	284 π	30.70	...
D† „ (The Graig)	H. Southall, Esq.	5	1 0	213 π	33.01	209
Much Dewchurch (Bryngwyn)...	J. Rankin, Esq., M.P.	5	0 10	420 B	33.21	181
D Brockhampton Court	Sir C. R. Lighton, Bart.	5	1 0	360	29.94	147
D Much Marcle (Caerswall)	T. Charles, Esq.	5	1 0	423 B	31.40	177
D Hereford (Fownhope Vicarage)...	Rev. T. West	5	1 0	186	27.73	143
D Ledbury (Orchardleigh)	M. A. Wood, Esq.	5	3 0	160	29.69	160
„ (Putley Court) ...	J. Riley, Esq.	5	1 0	290	32.02	175
Hereford (Hagley Park)	A. Hutchinson, Esq. ...	5	0 6	300 B	25.71	...
D Ledbury (Colwall)	Mrs. Devas	5	0 10	650 B	28.70	181
D „ (Canon Frome Vic.) ...	Rev. M. Hopton	8	1 3	252 T	30.54	181
Hereford (The Elms)	C. Anthony, Esq.	8	0 6	275 π	27.87	...
„ (Brinsop Vic.)	Rev. W. Elliot	5	1 0	300 T	25.89	167
D „ (Burghill)	No. 3 T.A. Chapman, Esq. M.D	5	1 0	275	28.53	168
„ („)	No. 2 „ „ „	5	1 0	275	28.44	169
D „ (Thinghill, Withington)	H. Higgins, Esq.	5	1 0	200 ?	27.49	164
D Hope-u-Dinmore (Hampton Ct.)	J. H. Arkwright, Esq..	8	1 2	212 B	28.82	136
Weobley (Dilwyn) ...	Col. Pearson	5	0 8	290	28.54	189
D Kington (Lynhales) . .	S. Robinson, Esq.	8	1 0	...	34.06	191
D Pembridge (Marston)	H. Langston, Esq.	5	1 5	347 T	29.99	182
D Bromyard (Buckenhill)	R. Phipps, Esq.	8	1 9	...	27.26	159
D Stoke Bliss	Rev. G. E. Alexander..	6	1 0	420 T	28.12	177
Wigmore	Rev. E. Barton ..	5	1 1	...	29.94	176

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
SHROPSHIRE.						
D Ludlow (Ashford)	Rev. J. Selwood Tanner	5	1 5	233	28·64	191
" (Dinham)	A. Marston, Esq.	...	...	...	31·14	...
Dowles [Bewdley]	J. M. Downing, Esq..	5	1 3	162 A	24·39	137
Cleobury Mortimer (Neen Savage)	Rev. F. Burd	5	0 11	367 T	29·50	172
D Ludlow (Bromfield Vicarage) ...	Rev. W. Selwyn	5	1 0	300 T	31·57	186
Clun (Bettws).....	Mr. R. F. Brand	5	2 0	1100 T	37·87	...
D Craven Arms (Stokesay Vicarage)	Rev. J. D. La Touche..	5	1 0	371 A	30·50	173
D Burwarton	Rev. A. James	5	1 0	830	33·61	190
Bishop's Castle (Castle Street)...	E. Griffiths, Esq.	5	2 0	720 B	33·62	200
D Much Wenlock (Larden Hall) ...	Miss F. Rouse Boughton	8	1 3	658 A	31·01	202
D Bridgenorth (Aldenharn Park).	W. F. De Wend, Esq..	5	3 9	430 T	28·30	154
Church Stretton (Preen Manor)...	A. Sparrow, Esq.	5	1 0	700 T	28·81	195
D " " (Woolstaston) ...	Rev. E. D. Carr.	5	1 0	800 A	29·75	200
D Middleton in Chirbury	Rev. W. Brewster.....	5	1 2	702 A	28·42	192
D Much Wenlock (Willey Park)...	Rt. Hon. Lord Forester	5	1 0	502 A	28·51	179
Condover Hall	Mrs. H. G. Close	5	1 3	184 T	25·47	138
Minsterley (Hampton Hall)	J. Whitaker, Esq.....	...	0 6	630	29·00	...
" (Wallop)	J. E. Severne, Esq. ...	8	2 0	700 T	31·14	182
D Pontesbury (The Villa).....	W. R. Croft, Esq.....	5	1 6	...	24·59	156
D Shrewsbury (Onslow Hall)	Col. Wingfield	8	0 5	301	22·72	...
" " " ") ...M	" " " " "	8	0 3	306	22·51	...
Preston Gubbals	Rev. J. Brownjohn ...	5	0 10	...	25·41	...
D Wem (The Clive Vic.)	Rev. T. Cooper Wood..	5	1 0	299	25·58	195
D Cheswardine (Knighton Res.) ...	G. R. Jebb, Esq., C.E.	8	0 3	351 A	25·06	191
Oswestry (Hengoed)	Rev. A. R. Lloyd	5	6 0	470 A	31·50	...
Market Drayton (Buntingsdale).	Mrs. Tayleur	5	1 0	276 A	22·96	166
D Adderley Rectory	Rev. A. Corbet	5	0 9	290 T	26·45	186
STAFFORD.						
Dennis [Stourbridge]	Mr. C. Webb	8	6 6	270 B	25·31	173
Netherton (Lodge Farm Res.) ...	G. Jebb, Esq., C.E. ...	5	1 0	445 A	23·52	176
D Handsworth	G. R. Farncombe, Esq.	5	4 9	529 A	26·66	175
D Perry Hall [Birmingham]	Mr. G. B. Mitchison ...	5	2 6	...	27·94	215
Walsall	E. B. Marten, Esq., C.E.	8	4 0	463 A	30·08	205
Wolverhampton (Town Hall) ...	REW Berrington Esq CE	5	15 6	481 A	25·25	173
" Park	Mr. W. Thomas	5	1 0	430 A	27·37	192
D Patshull Gardens	Mr. Bayne	8	1 3	400	27·43	176
D Wolverhampton (Wrottesley) ...	Mr. E. Simpson	8	1 0	500	24·80	170
Bloxwich (Sneyd Res.)	G. Jebb, Esq., C.E....	5	1 0	507 A	23·82	176
Hammerwich (Cannock Chase Res)	" " " " "	5	1 0	475 A	23·90	180
Lichfield Museum	Mr. J. P. Roberts	5	2 0	220 A	28·24	188
D Weston Park [Shifnal].....	Rt. Hon. Earl of Bradford	5	1 6	400 T	27·09	185
D Brewood (Belvide Res.)	H. R. Jebb, Esq., C.E.	8	1 0	367 A	24·50	132
D Penkridge (Rodbaston)	G. Ward, Esq.	5	1 0	260 P	27·60	152
Alrewas	E. Sellick, Esq.	5	1 6	181 T	23·72	148
Burton (Rangemoor).....	W. Bennett, Esq.	8	5 6	424 T	24·00	154
D " (Shobnall)	R. W. Abbotts, Esq....	5	6 0	156 T	21·72	143
D " (Derby Road).....	J. G. Wells, Esq.	5	1 0	151 T	23·00	203

DIVISION VI.—WEST MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
STAFFORD—(con.)						
D Burton (Hoar Cross)	F. W. Lycett, Esq. ...	8	4 0	400 T	26·89	170
D Market Drayton (Old Springs)...	F. R. Harding, Esq. ...	5	0 9	422	24·56	173
D† Cheadle (The Heath House).....	J. C. Philips, Esq.	5	1 0	647 T	28·70	189
D† „ (Teau Vicarage)	Rev. G. T. Ryves	5	1 0	470 T	29·76	200
D Longton (The Meir)	J. B. Piercy, Esq.	5	1 0	618 T	30·55	205
Cheadle (Oakamoor)	Royal Meteor. Society..	5	1 0	346	31·31	165
D Newcastle (Madeley).....	J. B. Piercy, Esq.	5	1 0	348 T	28·90	...
Stoke (Stanley Reservoir).....	E. B. Smith, Esq., C.E.	5	3 1	550 T	27·82	118
Etruria	„ „ „	5	4 2	440	28·69	132
Alstonfield Vicarage	Rev. W. H. Purchas...	5	1 0	909 T	37·38	175
D Leek (Wall Grange) old g.	J. B. Piercy, Esq.	8	1 0	458 T	30·94	200
D „ („ „)..... new g.	„ „ „	5	1 0	458 T	29·98	200
Knypersley [Congleton]	E. B. Smith, Esq., C.E.	5	14 0	500 T	33·99	174
Leek (Rudyard).....	„ „ „	5	12 7	500	23·10	...
WORCESTER.						
Blockley	R. B. Belcher, Esq. .:	5	1 0	472 T	30·62	...
Northwick Park.....	Lady Northwick.....	8	1 6	410 T	29·90	...
Upton-on-Severn (Willow Bank)	J. S. Cowley, Esq.	5	1 4	...	26·08	188
D Little Malvern (The Farm)	R. S. Moody, Esq.	8	1 0	500 T	29·75	184
D Evesham (Lansdowne)	R. Burlingham, Esq....	5	5 0	124 B	22·20	153
D „ (Bank)	T. J. Slatter, Esq.	5	1 0	103 T	23·33	175
D Great Malvern (Hornvold Ter.)..	H. Sandoe, Esq.	5	0 7	550 L	27·88	184
„ „	J. E. Palmer, Esq.	5	1 0	361 T	27·56	...
D „ „ (Davenham Bank).	Mr. A. Bradshaw	...	...	...	24·37	130
„ „ (Madresfield Rect.)	Rev. G. S. Munn	5	1 4	124 T	25·17	141
„ „ („ „ Court)	Mr. W. Crump	8	2 6	135 T	25·06	171
D Worcester (Diglis Lock)	H. J. Marten, Esq., C.E.	5	1 0	49 T	25·04	193
D „ (St. George's Square)	G. B. Wetherall, Esq. ...	5	1 8	56 T	23·40	188
D „ (Water Works)	S. G. Purchas Esq. ...	12	2 6	54	19·69	143
D „ (Bever Lock)	H. J. Marten, Esq., C.E.	5	1 1	52 T	22·95	183
D „ (Hawford Lodge)	Mr. F. Norkett	5	1 1	...	28·71	130
D Droitwich (Holt Lock)	H. J. Marten, Esq., C.E.	5	1 1	55 T	23·43	161
D Tenbury (Orleton)	T. H. Davis, Esq.	5	0 9	193 T	28·80	192
D Redditch (Prospect Hill)	H. Page, Esq., M.D....	5	1 0	420 T	26·97	194
D Bromsgrove (Stoke Reformatory)	Mr. J. Salter	5	1 3	225 L	22·01	151
D „ (Tardebigge Res.)...	W. B. Clegram, Esq. C.E.	5	3 0	433 T	25·82	168
D Stourport (Lincombe Lock).....	H. J. Marten, Esq., C.E.	5	1 0	62 T	24·68	185
„ (Hartlebury)	J. Watson, Esq.	5	1 6	320	23·08	...
D „ (Areley Court)	F. F. Harrison, Esq....	5	1 0	145 T	25·33	188
D Bromsgrove (Lower Bittal Res.)..	W. B. Clegram, Esq. C.E.	5	3 0	430 T	27·72	193
D Bewdley (Bark Hill).....	Mr. W. Wrathier	8	2 0	...	26·35	159
D Kidderminster (Woodfield)	Rev. J. R. Burton	...	3 0	167	24·52	166
Stourbridge (Pedmore)	E. B. Marten, Esq., C.E.	8	0 11	350 T	26·50	188
„ (Longlands)	„ „ „	8	1 0	260 T	27·59	160
D Acocks Green [Birmingham] ...	H. Grosvenor Hill, Esq.	5	1 0	429 T	27·63	174

DIVISION VI.—WEST MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which "01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level		
			ft. in.	feet.	inches.	
WARWICK.						
D Shipston (Compton Wynyates)...	J. Sargent, Esq.	5	2 6	...	29·28	175
Radway (Ivy Lodge)	Rev. G. Miller	5	1 1	530 †	29·95	182
Farnborough Vicarage	Miss Prater	5	1 2	520	31·25	176
Kineton (Fenny Compton)	E. Knott, Esq.	5	4 0	436	25·75	189
Stratford-on-Avon (Guild Street)	Rev. F. Smith	12	4 0	135 †	22·92	189
D Warwick (Barford Rect.)	Rev. C. Mills	8	0 11	167 †	23·20	178
D „ (Priory Gardens)	Mr. R. Greenfield	5	4 2	240 †	27·93	156
D Southam (Stockton)	Rev. W. Tuckwell	5	1 0	289	22·01	160
Leamington (Upper Parade)	J. Barnitt, Esq.	5	0 8	195 †	22·90	170
D Henley-in-Arden (Barrells Park)	T. H. G. Newton, Esq.	5	1 0	300 †	27·17	192
D Kenilworth (Park Hill)	T. G. Hawley, Esq. ...	8	0 8	300	24·95	162
D „ (The Spring)	W. E vans, Esq.	5	1 0	312 †	24·83	188
D Rugby School	W. N. Wilson, Esq. ...	5	1 3	383 †	27·51	205
D Coventry (Ryton on Dunsmore) ..	Mr. Franklin	5	1 2	260 †	23·66	196
„ (Priory Row)	J. Gulson, Esq.	8	1 3	279 †	25·29	172
„ (Middlesboro' Terrace) ..	Miss Merry	5	1 0	345 †	24·02	175
„ (Stoke)	J. Gulson, Esq.	8	1 3	241	24·90	179
D „ (Coundon)	Colonel Caldicott	8	1 11	375 †	27·03	189
D Willey Rectory [Lutterworth] ..	B. P. M. Payler, Esq. ...	8	1 0	350 †	27·24	207
D Birmingham (Sheldon Rectory) ..	Mrs. Jones Bateman ...	8	0 9	...	25·97	164
D† „ (Botanic Gardens) ..	Mr. Latham	5	5 2	505 †	25·81	192
D „ (The Crescent)	J. J. Gilbert, Esq.	5	21 0	495 †	24·43	172
„ („ „) ... M	„ „ „ „ „ „	5	7 0	480 †	26·27	...
D Atherstone	Baldwin Latham Esq CE	5	1 0	286 †	24·94	172

DIVISION VII.—NORTH MIDLAND COUNTIES.

LEICESTER.

D Market Harborough (Fairlawn) ..	R. Symington, Esq. ...	8	4 0	324 †	21·57	167
Fleckney	J. B. Putt, Esq.	5	1 0	411 †	26·49	...
D† Kibworth Beauchamp	T. Macaulay, Esq.	5	2 6	355 †	25·98	168
D Leicester (Town Hall Square) ...	J. Gordon, Esq., C.E. ...	9	1 7	212 †	24·00	153
D Little Orton [Atherstone]	Baldwin Latham Esq CE	5	1 0	350	23·31	155
D† Thornton Reservoir	F. Griffith, Esq., C.E. ..	8	1 2	371 †	24·15	142
Barkby	Rev. E. N. Pochin	8	0 10	221 †	25·87	198
D Thurmaston	Rev. T. A. Preston ...	5	1 0	253	23·86	176
D „ (Cropston)	F. Griffith, Esq., C.E. ..	8	1 0	246 †	24·52	168
Swithland (Roecliffe)	„ „ „ „ „	8	1 0	...	25·57	165
„ „ „ „ „	„ „ „ „ „	8	1 0	...	24·23	163
„ (The Brand)	„ „ „ „ „	8	1 0	...	26·61	168
„ (Broombriggs Hill)	„ „ „ „ „	8	1 0	...	25·27	175
Ratcliffe College	J. Hirst, Esq.	5	3 9	315 †	23·67	153
D Rotherby Hall	J. Hames, Esq.	5	1 0	250 †	21·56	195
D Melton Mowbray (Thorpe Arnold)	Rev. J. S. Swift	8	2 3	336 †	23·49	159
D Loughborough (Nan Panton Res.)	A. W. Cross, Esq., C.E. ..	8	2 11	269 †	24·57	157
„ („ „) M	„ „ „ „ „	5	2 0	269 †	24·39	...

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fell.
		Diameter	Height above Ground.	Height above Sea Level	1888	
			ft. in.	feet.	inches.	
LEICESTER—(con.)						
Loughborough (Cedar Cottage)...	J. Giles, Esq.	5	0 9	327 T	26·95	...
" (Victoria Street)...	W. Berridge, Esq.	5	0 10	169 B	22·62	167
" (Coston Rect.)...	Rev. "A. M. Rendell ...	8	0 11	169 B	22·63	167
D Melton Mowbray (Coston Rect.)...	Rev. "A. M. Rendell ...	5	1 0	362 T	24·37	175
D Waltham-le-Wolds	Mr. E. Ball	5	1 6	532 T	25·35	178
D Harston [Grantham]	F. Beasley, Esq.	...	1 3	...	22·02	166
D† Belvoir Castle	W. Ingram, Esq.	8	1 0	237 T	22·64	179
RUTLAND.						
D Uppingham (West Deyne)	Rev. G. H. Mullins ...	8	1 6	485 T	22·47	187
D Ketton Hall [Stamford]	F. Coventry, Esq.	5	1 0	130 B	24·31	205
Oakham (Whitwell)	Rev. J. Beecheno	5	1 0	320	21·01	...
D Toilethorpe Hall [Stamford]	C. O. Eaton, Esq.	8	0 8	160 T	22·85	152
Burley-on-the-Hill	Mr. W. Temple	8	1 0	506	25·10	144
D Oakham (Ashwell Lodge)	Westley Richards, Esq.	8	0 5	...	25·45	135
" (Greetham)	Rev. C. A. Holmes ...	5	0 4	377 T	24·70	138
D Market Overton	Miss H. E. G. Wingfield	8	0 11	475 T	24·43	219
LINCOLN.						
Stamford (Barn Hill Ho.)	Dr. Newman	5	1 0	116 T	22·69	...
" (Castle Cottage)	T. Booth, Esq.	5	1 0	...	23·88	...
D " (Northfields)	Mr. W. Hayes	5	1 0	166 T	21·99	145
D* Bourne (Wytham-on-the-Hill) ..	A. C. Johnson, Esq. ...	5	1 0	167 ?	24·31	124
Long Sutton	Mr. J. Tilson	5	4 0	...	21·94	167
Spalding (Pode Hole)	Mr. A. Harrison	12	0 3	20 T	21·46	...
Grantham (Little Ponton Rect.) ..	Rev. P. R. Worsley ...	5	1 0	...	23·23	146
" (Saltersford)	H. Preston, Esq.	5	0 6	188 T	22·19	147
" (Heydour Vicarage) ..	Rev. G. F. Deedes	5	1 10	244 T	22·16	...
D Boston (Grand Sluice)	J. E. Williams, Esq., C.E	8	6 0	22	22·25	185
D "	W. H. Wheeler, Esq. C.E	5	4 0	16	20·99	165
Leake (Lade Bank Engines)	J. E. Williams, Esq., C.E	...	...	...	20·79	145
D Wrangle	A. Spurr, Esq.	5	1 0	10	23·13	156
D Stubton [Newark]	G. Nevile, Esq.	5	4 6	94 T	23·85	159
Sleaford (Bloxholm)	Mr. D. Lumsden	5	1 3	80	22·39	116
D Navenby	Rev. J. Hays ...	8	1 2	216 T	23·62	199
D Skegness	H. V. Tippet, Esq.	8	1 6	10 L	17·50	114
Horncastle (Miningsby)	W. H. Wheeler, Esq. C.E	5	0 6	135 T	23·96	116
D Spilsby	Dr. J. W. Walker	5	1 0	300	27·50	189
" (Partney)	Rev. T. Owston	5	1 1	73	25·73	197
D " (Hagworthingham)	Mr. R. Wright	5	1 1	200	25·29	171
D Horncastle (Bucknall)	W. Carter, Esq.	5	1 0	50	22·16	132
" (Queen Street)	H. George, Esq., M.D..	5	1 0	100	24·08	...
D Lincoln (Branston)	A. S. Leslie Melville, Esq	...	...	120	26·58	162
D† " (Boultham)	Mr. F. Terrill	5	1 0	18 T	24·38	143
† " (St. Botolphs)	H. Teague, Esq.	5	1 3	25 T	23·96	...
" (St. Catherine's)	J. H. Teague, Esq.	5	5 0	33 T	23·92	...
D " (Doddington)	Rev. R. E. Cole	5	1 2	92 T	24·32	166

DIVISION VII.—NORTH MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
LINCOLN—(con.)						
Lincoln	M. S. & L. R. Co.† ...	9	3 6	26	20·34	149
"	Royal Meteor. Soc. ...	...	1 0	185	23·43	...
" (D'Isney Place)	A. H. Leslie Melville Esq	4	1 0	215 L	23·01	141
D " (Brayford Wharf)	Mr. J. W. Horton	5	5 8	28 A	23·00	190
" (Tentercroft Street) ...	W. F. Norton, Esq. ...	8	1 3	22	21·86	151
" (The Quarry)	R. Swan, Esq.	8	1 5	186 T	20·20	144
" (Skellingthorpe Hall) ...	R. C. B. Coupland, Esq.	5	1 1	...	23·41	145
D Horncastle (Hemingby)	Rev. E. S. Bengough ..	5	1 0	158	25·18	181
D Alford (The Burial Ground)....	Mr. E. Hodgson.....	5	1 0	29 A	25·44	201
D " (The Sycamores)	J. E. Mason, Esq.....	8	1 3	22 T	24·80	203
D " (Sutton-by-the-Sea)	F. Lowry, Esq., C.E.	5	1 0	9 A	22·39	149
D Farforth (Maidenwell House) ...	Miss H. E. Browne ...	5	1 2	380 T	27·53	202
Gate Burton	M. S. & L. R. Co.	9	3 6	96	20·98	123
Louth (Withcall)	R. Swan, Esq.	8	1 8	280 A	22·97	133
D† " (Gospelgate)	T. W. Wallis, Esq. ...	5	6 0	111 A	25·61	168
† " (Westgate)	Dr. F. Fawcett	5	0 9	120 A	26·04	176
D Market Rasen.....	Mr. W. B. Jevons.....	5	0 8	84	25·91	125
" "	M. S. & L. R. Co.	9	...	100	25·81	118
Gainsborough.....	" " "	9	...	76	18·23	138
Stockwith	" " "	9	3 6	21	23·39	149
Caistor	Rev. R. Thomas.....	5	0 9	283 A	22·07	140
Wroot Engine	A. L. Peace, Esq., C.E.	10	6 0	...	22·56	151
Brigg	M. S. & L. R. Co.	9	3 6	16	18·78	180
D "	A. Atkinson, Esq., C.E.	8	1 2	10 T	24·47	153
D Grimsby (Aylesby)	S. McAulay, Esq.	5	1 6	...	26·06	191
D Riby	Mr. Freeman	5	2 2	106 T	27·76	206
Grimsby	M. S. & L. R. Co.	9	15 0	42	23·99	157
D Ulceby (Limber Grange)	W. B. Hopkins, Esq....	5	1 6	210 B	28·41	189
Barnetby.....	M. S. & L. R. Co.	9	3 6	51	24·85	172
N. Level Engine [Thorne Donc'st'r]	A. L. Peace, Esq., C.E.	5	2 3	...	23·21	163
Crowle (Keadby)	M. S. & L. R. Co.	9	...	10	20·87	125
Appleby	Rev. J. E. Cross.....	5	0 9	60 L	24·81	175
Ferriby Sluice	" " "	5	0 9	10	24·19	...
New Holland	M. S. & L. R. Co.	9	3 6	18	21·77	163
NOTTS.						
Normanton on Soar [Loughboro']	T. W. Rowland, Esq....	5	0 0	118	24·37	...
D Kingston Hall [Loughborough]..	Mr. W. English.....	5	0 8	...	24·80	140
D Thrumpton Hall	Mr. Geddes.....	5	0 6	111 A	22·31	164
Cropwell Bishop (Cropwell Grove)	H. Smith, jun., Esq....	5	1 1	160 T	22·60	...
D Stapleford Hall	Col. Ichabod Wright..	5	1 0	132 A	21·31	159
D Nottingham (Beeston Fields) ...	G. Fellows, Esq.	5	0 9	206 A	23·49	176
D " (Cromwell Street) ..	Miss L. E. Booker.....	5	0 6	190	20·40	176
D " (The Castle)	A. Brown, Esq., C.E....	8	1 2	192 A	19·99	149
" (" ")	" " "	8	76 0	268 A	18·09	145
D " (Stoke Bardolph Sew Fm)	Mr. J. Avis.....	8	6 7	80	20·78	178
D " (Strelley Hall)	T. L. K. Edge, Esq. ...	8	1 0	396 A	25·29	171

† Kept for the Canals, Department of the Manchester, Sheffield, and Lincolnshire Railway Company.
Returns supplied by G. Taylor, Esq.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
NOTTS—(con.)						
d Nottingham (Mapperley Hill) ...	E. Powell, Esq.	8	1 0	400	22-15	137
" (Sherwood)	Mr. Frank Rayner ...	8	1 3	250	23-35	...
d " (Woodthorpe Grange)	H. Ashwell, Esq.	8	1 3	270 ?	27-32	135
Newark (Shelton Rectory)	Rev. R. W. Marriott...	5	2 2	85	21-15	...
Eastwood Colliery	Mr. E. Lindley	5	38 0	282 †	20-66	185
d " "	" " "	5	1 0	245 †	24-20	187
Newark (East Stoke).....	Miss Stanton	5	1 3	...	20-04	139
d Hucknall Torkard (Forge Mills)	J. D. Walker, Esq....	5	1 0	200 ?	21-25	164
d Annesley Park	Mr. A. Young	8	1 0	560	23-84	137
Southwell (Oxton).....	Miss Sherbrooke.....	5	0 9	182	25-53	...
d " "	T. L. K. Edge, Esq. ...	5	1 0	97 ‡	23-15	186
d Newark (Kirkgate)	Mr. A. Read	5	1 0	50	20-99	139
d Mansfield (Forest Villa)	S. W. Wright, Esq. ...	5	3 0	450	26-78	146
d " (Market Place)	Mr. W. Jackson	5	1 0	370 †	27-70	184
d Ollerton (Thoresby Gardens) ...	Mr. A. Henderson	8	4 0	175	23-54	155
d Tuxford (Grammar School).....	J. N. Dufty Esq.	5	1 0	220 †	21-44	129
Workshop	M. S. & L. R. Co.	9	3 6	127	21-85	147
d " (Osberton)	S. A. Woods, Esq....	5	3 11	...	29-00	158
Ratford	M. S. & L. R. Co.	9	3 6	52	21-80	168
d Workshop (Hodsock Priory)	H. Mellish, Esq.	8	1 0	56 ‡	22-37	182
" " " " " M	" " " " " "	5	1 0	56 ‡	21-81	...
d The "Gardens [Bawtry Hall] ...	L. T. Baines, Esq....	5	1 0	31 †	22-13	...
d Hesley Hall [Tickhill]	B. I. Whitaker, Esq....	8	0 11	61 †	22-13	180
DERBY.						
d Stapenhill [Burton]	R. W. Abbotts, Esq....	5	4 0	170	21-85	194
" " " " " "	A. J. Brown, Esq....	5	1 0	...	22-54	...
d Bretby Park ["]	Mr. G. Brunt	5	4 6	405 †	26-41	194
d " (Geary House)	T. Gibbs, Jun., Esq....	8	4 7	414	24-12	184
d Melbourne	Miss Tasker	5	0 3	...	25-61	182
Derby (Findern)	Rev. B. W. Spilsbury..	5	0 9	186 ‡	19-86	...
d " (Etwall)	Mr. R. Giles	...	...	...	21-32	117
d " (Elvaston)	H. Chambers, jun. Esq	5	1 0	...	22-03	182
d Mickleover Manor	Mr. J. Campbell	5	2 0	200	22-85	131
d Derby (All Saints' Works)	Messrs. J. Davis & Son	...	1 0	...	24-48	173
" (Duffield).....	Mr. W. Bland	5	1 0	250 †	22-77	146
d " (Holmside, Hazelwood)	C. H. B. Hambly, Esq.	5	1 3	500 †	26-65	180
" " " " " " " "	" " " " " " " "	8	1 6	500	26-47	180
Belper (Hazelwood, Chevin).....	Sir J. G. N. Alleyne, Bart.	5	4 6	545	25-54	153
d " (Northfield).....	J. Hunter, Esq., C.E....	8	0 8	225	27-77	183
d Wirksworth (Holloway)	R. Wildgoose, Esq. ...	5	1 0	450 †	32-30	184
† Matlock (Willersley Gardens) ...	Mr. Barlas	6	1 3	440 †	29-69	...
† " Bath	Mrs. Chadwick	5	1 6	500 †	31-01	136
n Stretton (Lindway Res.)	Mr. Pears	5	4 3	447 ‡	18-74	128
d Stuffynwood Hall [Mansfield]...]	J. Paget, Esq.	5	1 3	389 †	26-19	175
Chesterfield (Hardwick Hall) ...	Mr. Wilson	8	2 6	594 †	29-95	175
d Chatsworth Gardens	O. Thomas, Esq.	8	3 0	404	29-20	201
n Chesterfield (Gas Works)	C. E. Jones, Esq., C.E.	5	1 0	279	24-83	163

DIVISION VII.—NORTH MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ".01 or more fell.	
		Diameter	Height Above Ground		Height Above Sea Level		1888
DERBY—(con.)							
Chesterfield	M. S. & L. R. Co.	9	3	6	248	24·68	172
D " (Linacre Reservoir).	C. E. Jones, Esq., C.E.	8	3	6	490 ∇	25·07	157
D " (Tapton House).....	C. Markham, Esq. . . .	8	1	3	...	20·54	112
D " (Brimington Hall).	Miss Coke	5	1	4	408 ∇	28·40	195
D†Buxton (Devonshire Hospital)...	J. C. Thresh, Esq.	5	1	0	986 ∇	46·28	206
Stony Middleton	Mr. Wadlow	5	4	0	660	30·11	183
†Comb's Moss	M. S. & L. R. Co.	9	3	6	1669 ∇	39·20	...
† " Reservoir	" " " "	9	3	6	710 ∇	31·99	226
†Chapel-en-le-Frith	" " " "	9	3	6	965 ∇	32·28	197
†Killamarsh (Norwood)	" " " "	9	3	6	238 ∇	23·58	163
†Glossop (Spire Hollin)	F. Hawke, Esq.	8	0	10	612 ∇	38·46	...
Woodhead Station	M. S. & L. R. Co.	9	3	6	878 ∇	67·41	216

DIVISION VIII.—NORTH WESTERN COUNTIES.

CHESHIRE.

D	Baddiley (Nantwich W. W.)	Baldwin Latham Esq CE	5	...	231	24-23	155
D	Nantwich (Dorfold Hall)	J. A. Saner, Esq.	8	1 6	190	25-30	150
	Crewe (Wistaston Road)	E. Pillow, Esq., C.E.	12	30 8	209	22-38	...
D	Congleton (Buglawton Vic.)	Rev. W. Besant	8	5 0	347 T	26-84	177
	Bosley Reservoir	M. S. & L. R. Co.	9	3 6	590 T	25-17	190
	" Minns	" "	9	3 6	1210 T	31-81	188
	Macclesfield (Wincle)	E. B. Smith, Esq., C.E.	5	3 0	500	35-07	173
D	Chester (Rowton Grange)	T. R. Fleming, Esq.	5	1 0	164 B	23-31	173
D	" (Christleton Hall)	Mr. T. Weaver	5	1 2	142 A	24-63	190
D	" (Waterworks)	J. Dugdale, Esq.	5	0 10	85 A	23-07	183
†	" (Lead Works)	A. O. Walker, Esq.	5	1 0	65 T	24-32	190
D	" (" " Field)	" " " "	5	1 2	67 T	23-99	189
D†	" (Newton Nurseries)	J. Dickson & Sons	5	1 0	62 A	23-79	202
	Middlewich (Bostock Hall)	Col. France Hayhurst.	5	2 0	157 A	23-21	142
D	Siddington (Thornycroft Hall)	Mr. J. Harrison	5	3 0	377	27-17	197
D	Macclesfield (The Park)	Mr. J. Dale	5	1 0	501 T	31-49	192
D	Chelford (Astle Hall)	G. Dixon, Esq.	5	1 0	250 T	27-79	164
	" (" " ")	M " " " "	8	1 0	250 T	26-51	...
D	Northwich (Highfield)	J. A. Saner, Esq., C.E.	8	3 4	118 A	23-89	189
D	" (Winnington)	Mssrs Brunner Mond & Co	5	3 8	110 A	24-79	212
D*	Neston (Hinderton)	Reginald Bushell, Esq.	5	1 0	215 A	24-18	184
*	" (" ")	M " " " "	8	1 0	215 A	24-66	...
	" (" " Lodge)	M " " " "	5	1 0	145 A	23-50	...
	Frodsham (Fox Hill)	J. Reynolds, Esq.	5	1 0	350	26-01	196
	" (Dunsdale)	J. Simpson, Esq.	5	1 1	206	26-30	197
	Knutsford (Heath Side)	W. Tyrer, Esq.	5	1 0	210	26-36	195
	Bollington (Spond's Hill)	M. S. & L. R. Co.	9	3 6	1279 T	29-22	...
D	Wilmslow (Southside)	G. Pearson, Esq.	8	2 0	255 T	28-97	171
	" (Poplar House)	J. Holden, Esq.	5	1 0	237	27-03	...
†	Whaley	M. S. & L. R. Co.	9	3 6	602 T	34-58	...
D	Thurstaston (Dawpool)	J. H. Ismay, Esq.	...	...	...	23-06	105

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
CHESHIRE—(con.)						
Runcorn (Weston Point)	J. A. Saner, Esq., C.E.	4	2 4	18	26·94	153
Hill Cliffe [Warrington]	J. Marson, Esq.	5	1 0	159 π	29·00	203
Bowdon (The Firs).....	R. Swindells, Esq., C.E.	5	0 8	215 π	25·96	...
Thelwall (Highfields)	T. G. Rylands, Esq. ...	5	1 0	118 π	25·34	191
" " " " " " M	" " " " " "	5	1 0	118 π	25·03	...
" (Massey Hall).....	L. G. Rylands, Esq. ...	5	1 0	100 B	26·21	190
" (Millington House).....	L. W. Reynolds, Esq..	5	1 0	85	26·48	196
Lymm (Statham Lodge)	P. Stubs, Esq.	5	1 0	42 π	25·13	191
" " " " " " M	" " " " " "	5	1 0	42 π	25·57	...
Altrincham "Norman's Place) ...	A. Griffiths, Esq.	5	1 0	150 T	27·72	182
" (Barrington House).	J. Newton, Esq., C.E..	8	3 0	105 π	28·96	...
Hoylake (The Chase East)	J. F. Leigh Clare, Esq.	5	...	10	22·33	191
† Birkenhead (Bidston Obs.)	J. Hartnup, Esq.	8	1 0	189 π	24·09	210
Northenden (Wythenshaw).....	T. E. Tatton, Esq. ...	5	1 0	114 T	26·32	169
Marple Top Lock ...	M. S. & L. R. Co.	9	3 6	543 T	34·39	199
" Aqueduct	" " " " " "	9	3 6	321 T	29·05	186
Sale (Brooklands)	J. F. Jordan, Esq.	5	5 6	90	26·67	...
Godley Reservoir	J. F. Bateman, Esq. FRS.	12	...	500	29·64	...
Newton	M. S. & L. R. Co.	9	3 6	396 T	26·15	162
Mottram (Hill End)	" " " " " "	9	3 6	680 T	35·71	203
" (Matley's Field)	" " " " " "	9	3 6	399 T	31·75	205
Hadfield (Millbrook).....	J. Sidebottom, Esq. ...	12	3 10	442 T	36·67	207
" " " " " "	" " " " " "	8	3 10	442 T	36·03	207
Arnfield Reservoir.....	" " " " " "	7	2 6	515	33·45	...
" " " " " "	J. F. Bateman, Esq. FRS.	12	2 6	515	35·36	...
† Rhodes Wood Reservoir	" " " " " "	12	1 0	520	39·49	...
† Torrside Reservoir	" " " " " "	12	1 6	680	42·98	...
Staleybridge (Swineshaw).....	" " " " " "	8	3 0	884 π	43·07	...
† Woodhead Reservoir	" " " " " "	12	0 10	660	45·38	...
LANCASHIRE.						
Garston (Grassendale Park).....	Miss E. C. Abraham ...	5	1 0	35 T	27·25	216
Aigburth (Kelton).....	J. Sing, Esq.	5	1 0	135 T	27·45	200
Woolton (Roseleigh).....	A. Tate, Esq.	12	4 6	170 B	32·15	...
Warrington (Arpley)	T. Longdin, Esq.	10	10 3	33 π	23·80	191
" (Cemetery)	" " " " " "	10	1 0	32 π	25·42	...
Liverpool (Grove Park).....	J. R. Darsie, Esq.	3	6 0	160	27·81	184
" (Hope Street)	G. Jevons, Esq.	5	1 0	150	27·90	202
" (St. James's Mount)... ..	Rev. W. Banister	5	1 1	150 π	30·19	173
Heaton Moor [Stockport]	F. W. Jordan, Esq. ...	5	1 0	235	28·92	199
Walton (Breeze Hill)	WH Andersson, jun, Esq	5	1 11	119 π	25·31	...
Manchester (Withington) No. 2	J. King, jun., Esq. ...	5	1 0	110 T	27·00	170
" " " " ") No. 3	" " " " " "	8	1 0	110 T	26·77	170
" (Stretford)	H. Royle, Esq., C.E... .	5	1 0	86 π	27·12	190
Denton Reservoir	J. F. Bateman, Esq. FRS.	...	...	324 T	29·71	...
Gorton.....	" " " " " "	...	...	263 T	28·87	...
Manchester (Plymouth Grove)...	J. F. Roberts, Esq. ...	5	4 2	150 π	30·86	186
" (Ardwick)	J. Casartelli, Esq.	9	3 0	140 π	28·40	170

DIVISION VIII.—NORTH WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
LANCASHIRE—(con.)						
Manchester (York Place)	E. Worthington, Esq CE	5	0 9	125 T	29·32	165
„ (Embsen Street)	J. Hart, Esq.	5	6 6	112 T	34·63	176
† „ (Piccadilly)	M. S. & L. R. Co.	9	40 0	194 T	26·58	166
„ (Fairfield)	„ „ „ „	9	6 0	312 T	36·04	159
Eccles (Worsley Hall)	Mr. W. B. Upjohn ..	8	10 0	80 L	28·55	161
Blundellsands (Park Corner) ...	T. M. Reade, Esq. C.E.	5	1 0	33 A	25·99	215
D Manchester (Newton Heath).....	J. Warren, Esq.....	5	1 0	242 A	32·17	218
D „ (Cheetham Hill)	W. B. Worthington, Esq	5	0 11	255	31·13	202
„ (Higher Broughton) ..	W. Wilson, Esq.	5	1 0	200	31·87	201
Ashton (Waterhouses)	M. S. & L. R. Co.	9	3 6	345 T	37·62	201
*Maghull	I. Roberts, Esq.....	5	1 0	68 A	26·25	181
Prestwich Asylum.....	The Meteor. Council ...	8	1 0	295	33·95	...
„ Reservoir	J. F. Bateman, Esq. FRS.	...	...	347 T	31·88	...
†Oldham (Gas Works)	„ „ „	5	4 0	600 T	33·15	...
„ (Brushes Clough).....	„ „ „	5	4 0	930 T	43·56	...
„ („ „) <i>New g</i>	„ „ „	...	...	955 T	39·21	...
Ormskirk (Aughton Springs) ...	G. Cooke, Esq.	5	0 6	150	26·53	...
D Wigan Waterworks	W. Bolton, Esq.....	8	1 6	225 T	32·58	187
Bolton-le-Moors (The Folds) ...	W. H. Watson, Esq....	10	3 6	286 T	36·59	...
D „ (The Park) ...	W. W. Midgley, Esq..	5	1 0	390	37·99	204
„ (Heaton)	RHSwindlehurstEsqCE	6	1 3	500	34·80	214
D „ („)	J. S. Holdsworth, Esq.	10	3 6	497 A	37·22	192
D „ (Hurst Bank).....	J. Watkins, Esq.	5	3 10	442 A	37·75	217
„ (Halliwell New Road) ..	W. Tyson, Esq.	5	1 6	470 B	43·98	193
D „ (Moss Bank) ...	R. H. Ainsworth, Esq..	8	1 8	574 A	41·62	172
D „ (Smithills Hall) ..	„ „ „	8	1 4	507 T	40·32	201
Bury (Gin Hall)	T. Rigby, Esq.	8	1 0	475	37·10	163
† Milnrow (Piethorne Kitcliff) ...	J. F. Bateman, Esq. FRS	5	4 0	767 T	24·56	...
„ („ Coldgreave) ..	„ „ „	5	4 2	894 T	38·39	...
Rochdale (Park Observatory) ...	Dr. Henry	8	0 8	472	39·79	185
D „ (Fieldhead).....	S. S. Platt, Esq., C.E..	8	12 0	484 A	37·07	200
D „ (Stone Hill)	Miss Petrie	5	1 6	500	41·33	216
D Ormskirk (Rufford)	J. Porter, Esq.	5	0 8	38 T	29·23	193
Bolton (Belmont)	RHSwindlehurstEsqCE	6	0 9	800	53·40	235
Rochdale (Nayden Dane)	J. Diggle, Esq., C.E....	5	1 6	900 T	32·37	...
D „ (Facit)	T. S. Smithson, Esq....	5	0 6	855 T	44·78	227
Southport (Hesketh Park)	J. Baxendell, Esq. ...	5	2 8	23 A	28·71	187
Entwistle	RHSwindlehurstEsqCE	7	1 0	700	44·70	232
Blackstone Edge (Windy Bank) ..	Rochdale CanalCompy*	10	1 6	600	25·00	...
„ „	„ „ „	10	1 9	1225	31·40	...
„ „ (CanalSummit) ..	„ „ „	10	1 10	700	30·80	...
„ „ (Chelbourn) ...	„ „ „	10	1 3	800	36·20	...
„ „ (Lenches)	„ „ „	10	1 10	800	39·90	...
„ „ (Calf Lee).....	„ „ „	10	1 6	960	33·10	154
D Chorley (Whittle-le-Woods) ...	Theodore J. Hare, Esq.	5	2 6	265 T	32·83	186

* Returns supplied by C. R. Dykes, Esq.

DIVISION VIII.—NORTH WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
LANCASHIRE—(con.)						
Haslingden (Holden Wood)	T. Rigby, Esq.	8	1 0	670	45·11	144
" (Calf Hey)	" "	8	1 0	800	41·76	144
Chorley (Withnell Hall)	J. Shackleton, Esq. ...	5	0 10	545	37·67	...
Over Darwen (Sunnyhurst Hey).	T. Duxbury, Esq.	8	2 0	915 †	39·57	163
" " (Earnsdale Res.)...	" "	8	2 0	...	50·52	163
" " (St. James's Vic.)..	Rev. W. H. Blamire...	5	1 0	564 †	41·65	186
" " (Hoddlesden Res.)..	J. B. McCallum Esq., C.E.	8	4 0	680	43·41	204
" " (Daisy Green)	" " "	8	1 0	969 †	39·57	161
" " (Pickup Bank) ...	" " "	8	1 0	720 †	40·26	160
Blackburn (Guide Reservoir) ...	" " "	8	1 0	650	31·34	174
" Oswaltdwistle Waterworks	R. N. Hunter, Esq. ...	10	0 6	635	37·91	178
" Lytham (Woodville Terrace) ...	S. Stott, Esq.	8	2 1	...	28·38	246
Blackburn (Pleasington)	J. B. McCallum Esq., C.E.	8	2 6	232 †	31·90	...
" (Witton)	" " "	8	2 6	315 †	35·81	193
" (Store Yard)	" " "	8	30 0	373 †	28·29	163
" (Water Works Office)	" " "	8	60 0	436 †	23·51	156
" (Pumping Station) ...	" " "	8	6 0	600 †	37·47	162
Accrington (Warmden Reservoir)	R. Crossley, Esq.	8	1 9	650 †	38·36	140
" (Washington House)..	E. Knowles, Esq.	5	30 0	530 †	32·72	182
" (Milnshaw Grounds)..	Mr. Hargreaves.....	5	1 6	464 †	33·50	187
" Preston (Corporation Offices) ...	H. Reah, Esq.	8	16 0	123	29·87	166
† Rawtenstall (Clough Bridge Res.)	T. Rigby, Esq.	8	1 0	900 †	39·35	211
Burnley Waterworks { Causeway Side	W. Williamson, Esq.	8	2 0	1116	37·96	...
" { Sheddin	" " "	8	2 0	960	37·45	...
" { Cant Clough, S. Side	" " "	8	2 0	900	38·35	211
" { " " N. Side	" " "	8	2 0	900	37·37	211
" { Rams Clough Head	" " "	8	2 0	1260	37·05	...
" Huncoat (Burnley Road Res.) ...	C. Harrison, Esq.	9	1 6	620 †	36·01	203
Clayton-le-Moors (Oakenshaw)..	J. H. Calvert, Esq. ...	5	9 6	290 †	32·54	...
† Burnley (Yorkshire Street) ...	W. Williamson, Esq. ...	8	30 0	420 †	32·49	197
† " (Swinden, Upper)	" " "	8	12 0	820 †	38·38	211
† " (" Lower)	" " "	8	2 0	745 †	38·91	211
† " (Extwistle Moor)	" " "	8	2 0	1310 †	40·91	...
" (Gawthorpe Hall)	Sir U. K. Shuttleworth Bt	8	1 3	316 †	34·82	158
" Preston (Haighton)	J. J. Myres, Esq., C.E.	5	1 2	255 †	32·37	192
Alston	H. Reah, Esq.	8	1 2	320 †	32·71	...
Blackpool (South Shore)	G. Sharples, Esq.	10	1 8	29 †	29·47	...
"	J. Wolstenholme, Esq.	5	1 0	58	29·63	185
" Kirkham (Weeton)	J. Bradley, Esq.	10	1 0	95 †	31·38	...
Nelson (Coldwell Reservoir).....	J. Newton, Esq., C.E..	8	2 0	950	26·85	...
" Ecclestone (Elswick Lodge)	S. King, Esq.	10	1 4	50 †	28·97	178
" " " "	" " "	5	1 0	50 †	31·04	...
" " " "	" " "	5	5 6	50 †	29·84	...
" Stonyhurst College	Rev. S. J. Perry, F.R.S.	11	1 0	376 †	42·04	201
" "	" " "	11	2 0	377 †	40·99	213
" "	M " " "	11	1 0	376 †	42·41	...

DIVISION VIII.—NORTH WESTERN COUNTIES—(continued.)

STATIONS.		AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which '01 or more fell.
			Diameter	Height Above Ground	Height Above Sea Level	1888	
LANCASHIRE—(con.)							
Preston W. Works.	{ Knowle Green	H. Reah, Esq.	8	1 2	400 T	36·13	...
	{ Loud-scales	" "	8	1 2	400 T	39·57	...
	{ Spade Mill	" "	8	1 2	400 T	35·01	...
	{ Jeffrey Hill	" "	8	1 2	900 T	40·02	...
	d St. Michael's-on-Wyre No. 2 ...	Rev. P. J. Hornby	5	1 0	26 A	31·20	171
	" " " " No. 1 M	" " " " " "	5	1 0	26 A	29·86	...
	d Beaton Fell (Barnsfold Res.) ...	J. J. Myres, Esq., C.E. ...	5	1 6	506 A	37·53	213
	" " " " " " M	" " " " " "	5	1 6	506 A	37·31	...
	d Garstang (Calder " Mount)	C. " Wilson, Esq.	5	10 0	110 A	29·20	197
	" " " " " " M	" " " " " "	5	1 0	71 A	30·43	...
	Clitheroe (Downham Hall)	R. Assheton, Esq.	10	1 6	464 A	32·98	...
	Garstang (Barnacre Reservoir)...	J. Bradley, Esq.	10	1 0	617 A	37·78	...
	" (Grizedale Reservoir)	" " " " " "	10	1 0	519 T	36·61	...
	d Wyresdale (Abbeystead)	A. Creer, Esq., C.E. ...	8	1 0	366 T	41·18	174
	" (Old Gauge Basin)...	" " " " " "	8	1 0	963 T	36·90	...
	" (Wardstone)	" " " " " "	8	1 0	1440 T	46·60	...
	Quernmore (Brow Top).....	" " " " " "	8	1 0	552 T	35·61	...
	Lancaster (Southfield)	Miss Roper	12	3 6	114 A	35·66	222
	" (Escowbeck, Caton)...	A. Greg, Esq.	12	3 0	150 T	32·25	120
	Hest Bank	T. Ransome, Esq.	5	2 0	58 T	31·05	195
d Wray Vicarage	Rev. C. L. Reynolds ...	5	1 1	165 A	44·69	192	
Barrow-in-Furness	W. Fergusson, Esq. ...	11	1 6	36 A	36·15	176	
d† " " (Cavendish Pk)	W. S. Whitworth, Esq. ...	8	1 0	60 A	34·72	191	
Arkholme (Storrs Hall)	F. F. Pearson, Esq. ...	5	1 0	220	36·97	...	
d Ulverston (Urswick)	Rev. R. B. Billinge ...	5	3 0	...	37·65	187	
Cartmel (Flookburgh)	T. R. Croasdale, Esq. ...	5	1 7	70 B	33·22	121	
† " (Holker)	Mr. W. Fox	8	4 8	155 A	35·55	173	
Grange (Nutwood).....	Rev. E. Massie	5	2 6	100 B	34·33	208	
d† Ulverston (Poaka Beck) .	Mr. W. Fergusson	11	1 6	512 A	53·26	217	
d Cartmel (Pit Farm)	Mr. W. R. Nash	5	1 0	122 T	38·72	198	
" (Broughton Hall)	Col. Ainsworth	5	2 8	210 T	39·38	192	
d Ulverston (Colton)	Rev. A. Christopherson	5	1 0	226 A	49·81	196	
d Blawith	Rev. J. Ashburner.....	5	0 10	...	50·72	193	
d Broughton (Woodland Rectory)	Rev. E. C. Shawfield ...	5	1 4	100 T	51·27	168	
Hawkshead (Grizedale Hall) ...	W. G. Ainslie, Esq., M.P. ...	9	1 0	325	59·00	188	
d " (Esthwaite Lodge).....	Major Alcock-Beck ...	5	3 6	232 T	60·24	207	
" " (Strickland Ease)	" " " " " "	5	3 6	254 T	55·63	...	
d† Monk Coniston Park	V. " Marshall, Esq.	5	1 4	305 T	70·84	165	

DIVISION IX.—YORKSHIRE.

WEST RIDING.

† Sheffield (Brincliffe Rise)	A. W. Chadburn, Esq. ...	5	1 0	500 T	30·37	180
† " " (Edge)	M. S. & L. R. Co.	9	3 6	336 T	31·51	175
† " " (Redmires)	E. M. Eaton, Esq., C.E. ...	10	5 0	1110 T	38·17	199
" " " " " " weekly	" " " " " "	8	4 0	1100 T	38·62	...
d " " (Tylecote, Ranmoor) ...	J. Dixon, Esq.	10	3 6	610 A	33·87	173

DIVISION IX.—YORKSHIRE—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which 101 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
WEST RIDING—(con.)						
† Sheffield (Broomhall Park)	D. Doncaster, Esq.	10	2 0	330	26·63	133
„ (Rivelin)	E. M. Eaton, Esq., C.E.	10	4 0	564	31·27	188
„ „ „ „	„ „ „ „	8	4 0	564	31·36	...
† „ (Crookes)	„ „ „ „	10	2 0	629	26·37	179
† „ „ „ „	„ „ „ „	8	2 0	629	26·43	...
D „ (Weston Park)	E. Howarth, Esq.	8	1 0	430	29·21	173
† Rotherham (Ulley Reservoir) ..	Mr. L. Berry	5	1 0	184	21·95	142
† Sheffield (Victoria Station)	M. S. & L. R. Co.	9	3 6	188	25·45	173
† „ (Tinsley Locks)	„ „ „ „	9	...	143	20·76	145
Tickhill (Sandbeck Park)	Mr. G. Summers	8	1 0	150	24·24	166
† Rotherham (Moorgate Grove) ..	R. Chrimes, Esq.	5	1 0	262	24·81	185
„ (Thrybergh)	W. H. Crabtree, Esq. C.E.	8	1 0	184	20·74	128
D Tickhill	G. G. Phillips, Esq. ...	8	1 0	61	23·90	187
D Sheffield (Chapelton)	Mr. D. Bell	8	5 0	582	27·90	180
Doncaster (Firsby)	W. H. Crabtree, Esq. C.E.	8	1 3	189	26·16	163
D Bolsterstone (Waldershaigh) ..	C. M. Wilson, Esq.	8	3 1	950	35·04	198
Wortley	M. S. & L. R. Co.	9	...	548	28·87	172
Elsecar	„ „ „ „	9	...	175	23·24	147
D Wath-upon-Dearne (Chapel St.) ..	Dr. Burman	8	1 0	185	23·54	183
D „ (West Melton)	W. Jackson, Esq.	6	0 10	172	22·74	138
Worsborough	M. S. & L. R. Co.	9	...	225	24·29	161
D Stainborough (Wentworth Castle) ..	W. Fisher, Esq.	8	2 6	520	30·67	167
Doncaster	M. S. & L. R. Co.	9	...	35	23·45	161
„ (Pumping Station) ..	W. H. Crabtree, Esq. C.E.	8	0 6	30	23·86	138
D „ (Magdalens)	Mr. J. Howorth	5	4 6	46	23·90	158
† Dunford Bridge Station	M. S. & L. R. Co.	9	3 6	954	40·86	190
† „ „ (Reservoir)	J. F. Bateman, Esq. F.R.S.	12	2 0	1100	49·50	...
† Penistone (Carlcoates)	M. S. & L. R. Co.	9	3 6	1075	37·37	210
† „ „ „ „	„ „ „ „	9	3 6	717	31·82	186
„ (Hazehead)	„ „ „ „	9	...	868	39·05	219
D „ (Ingbirchworth Res.) ..	J. H. Taylor, Esq. C.E.	8	1 3	853	39·90	222
Holmbridge (Batley Waterworks) ..	J. F. Bateman, Esq. F.R.S.	...	...	917	63·40	...
„ (Wessenden Head) ..	J. Stanway, Esq.	8	...	1270	43·98	...
D Barnsley (Church Street)	Dr. Sadler	5	5 2	350	24·98	189
D „ „ „ „	J. H. Taylor, Esq., C.E.	8	15 0	350	25·17	155
„ „ „ „	M. S. & L. R. Co.	9	...	175	21·50	175
D Dobcross	G. F. Burd, Esq.	5	1 0	...	48·23	215
Saddleworth Station	M. W. B. Worthington, Esq.	5	4 2	630	38·18	...
Strinesdale [Oldham]	J. F. Bateman, Esq. C.E.	5	4 0	815	31·33	...
† Meltham (Harden Moss)	J. Stanway, Esq.	8	1 2	1212	44·38	...
Standedge (Castleshaw)	J. F. Bateman, Esq. C.E.	...	...	876	38·08	...
„ (Red Brook)	W. B. Worthington, Esq.	8	1 8	1150	43·58	...
Meltham (Brow Grains)	J. Stanway, Esq.	...	...	900	43·02	...
Denshaw (New Year's Bridge) ..	J. F. Bateman, Esq. F.R.S.	5	4 0	1012	40·86	...
„ (Ready Con Dean)	„ „ „ „	...	...	1414	37·92	...
D Meltham (Harewood Lodge)	C. L. Brook, Esq.	8	4 10	514	38·68	206
† „ Grange	J. Stanway, Esq.	8	1 2	850	39·10	...
Marsden (Deer Hill)	„ „ „ „	...	...	1149	42·30	...

DIVISION IX.—YORKSHIRE—(continued)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above Sea level	1888	
			ft. in.	feet.	inches.	
WEST RIDING—(con.)						
Doncaster (Hatfield)	Mr. T. Askren	5	5 4	...	22·76	165
„ (Kirk Bramwith)	B.S.Brundell, Esq. C.E.	5	1 0	17 A	22·83	177
„ {Owston}	H. Ripley, Esq.	8	1 0	55 A	23·69	156
„ { „ }	„ „ „	8	1 0	56 A	23·67	...
D „ (Burghwallis Rec.)	Rev. F. W. Peel	5	1 0	80 T	23·85	186
„ { „ }	„ „ „	5	1 0	80 T	22·68	...
D Slaithwaite (Blackmoorfoot)	J. Stanway, Esq.	8	1 0	800 T	37·35	238
D Honley (Northgate House)	Miss E. Brooke	5	1 0	350 T	37·87	219
„ { „ }	„ „ „	5	1 0	350 T	36·33	...
D Wakefield (Walton)	E. Simpson, Esq.	5	0 9	150	26·60	199
Huddersfield (Bankfield, Golcar)	J. E. Ramsden, Esq.	5	1 0	400 T	37·75	199
D† „ (Dalton)	J. W. Robson, Esq.	8	1 0	350 A	30·49	186
Longwood (Bilberry Edge)	J. Stanway, Esq.	8	1 2	1090 T	34·88	...
D Mirfield (Cote Wall)	E. B. W. Balme, Esq. ..	8	0 9	200	26·48	160
D† Wakefield Prison	Dr. H. Clarke	8	1 0	96 A	26·98	180
„ (Alverthorpe Hall)	H. Clarkson, Esq.	5	1 0	150 T	23·35	160
D Rastrick	J. T. Clay, Esq.	5	1 3	410 T	29·09	144
Pontefract (Fern Hill)	A. T. Barker, Esq.	5	2 0	120	20·61	...
Wakefield (Field Head)	R. Porter, Esq.	8	1 0	250 T	22·20	160
D Goole	W. E. Grayburn, Esq. ..	5	1 0	18 T	21·79	151
Halifax (Bents, Norland)	J. S. Rawson, Esq.	5	0 8	800 T	33·78	...
D „ (Bermerside Observatory)	J. Gledhill, Esq.	8	0 6	500	32·76	195
„ (Thorpe)	J. S. Rawson, Esq.	8	0 8	345 T	38·71	...
D „ { „ }	„ „ „	5	0 8	345 T	39·30	205
† „ (Albert)	J. A. Paskin, Esq., C.E. ..	5	1 0	795 T	33·81	...
† „ (Gibbet)	„ „ „	5	6 0	568 T	31·49	...
† „ (Ramsden Wood)	„ „ „	8	1 2	816 T	38·32	...
Leeds (Methley Park)	J. Richardson, Esq. C.E. ..	5	0 9	98 A	26·09	162
Hebden Bridge	A. R. Crossley, Esq.	4	1 0	479	44·14	203
Halifax (Castle Carr)	J. A. Paskin, Esq., C.E. ..	...	...	1060 T	40·82	...
† „ (Midgley Moor)	„ „ „	7	0 6	1350 T	44·25	...
† „ (Warley Moor)	„ „ „	7	0 6	1425 T	44·62	...
† „ (Ogden)	„ „ „	8	1 3	990 T	43·28	...
„ (Ovenden)	„ „ „	...	...	1375	44·31	...
„ (Widdop)	„ „ „	...	...	1050	45·32	...
† „ (Walshaw Dean)	„ „ „	8	0 3	1380 T	43·80	...
D South Milford Rectory	Rev. F. J. Young	5	1 4	60 A	21·85	179
Leeds (Wortley Res.)	T. Hewson, Esq., C.E. ..	8	0 9	307 A	28·61	167
Bradford (Queensbury)	R. J. Foster, Esq.	8	2 2	1050	37·52	138
„ (Brayshaw Reservoir)	A. R. Binnie, Esq., C.E. ..	5	1 0	982 A	38·50	205
D „ (The Exchange)	J. McLandsborough, Esq ..	8	65 6	395 A	25·65	182
„ (Farcliffe)	E. Milnes, Esq.	5	1 0	575 T	34·33	189
„ (Stubden) old gauge	A. R. Binnie, Esq., C.E. ..	8	1 0	1075 A	49·25	261
„ { „ }	„ „ „	5	1 0	1071 A	45·57	261
„ (Brown Royd Res.)	„ „ „	5	1 0	385 A	25·45	161
„ (Nan's Scar)	„ „ „	5	1 0	1101 T	46·67	...
„ (Stairs)	„ „ „	5	1 0	1401 A	45·87	...

DIVISION IX.—YORKSHIRE—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which "01 or more fell.
		Diameter	Height Above Ground.	Height Above Sea level		
			ft. in.	feet.	inches.	
WEST RIDING—(con.)						
Bradford (Leeming Res.) M	A. R. Binnie, Esq. C.E.	5	1 0	850 ∇	44·53	...
" (Doe Park) <i>old gauge</i> ..	" " "	8	1 0	810 ∇	44·93	260
" (" ")	" " "	5	1 0	811 ∇	41·10	260
" (Leeshaw Res.) M	" " "	5	1 0	875 ∇	44·13	...
" (Chellow Dean)	" " "	5	1 0	645 ∇	33·40	142
" (Hewenden Reservoir) ..	" " "	5	1 0	701 ∇	31·90	193
" (" ") <i>old g.</i> ..	" " "	5	1 0	700 ∇	34·76	193
" (Heaton Res.) <i>old g.</i> ..	" " "	8	1 0	530 ∇	31·60	178
" (" ") ..	" " "	5	1 0	531 ∇	29·62	175
† Leeds (Holbeck)	J. Marshall, Esq.	10	32 0	127 ∇	22·26	125
" (" ")	" " "	5	1 8	95 ∇	22·82	125
" (" " W. Works Depot) ..	T. Hewson, Esq., C.E..	8	0 9	93 ∇	24·42	164
" (Museum)	E. R. Waite, Esq.	8	46 0	180	23·35	161
" (Woodhouse Moor)	T. Hewson, Esq., C.E.	8	0 9	307 ∇	26·17	167
" (" " Cliff)	R. Reynolds, Esq.	5	1 0	330	26·57	189
" (Elmete Hall, Roundhay) ..	Sir J. H. Kitson, Bt...	5	1 6	400 ∇	28·63	193
" (Weetwood Reservoir) ...	T. Hewson, Esq., C.E.	8	0 9	328 ∇	26·72	176
Shipley (Moor Head)	G. Knowles, Esq.	8	10 0	500	26·25	...
Leeds (Allerton Hill)	T. Fenwick, Esq., C.E.	5	0 7	418 ∇	27·38	205
" (Lawns Wood, Adel)	Mr. C. S. Irvine	5	1 0	475 ∇	27·32	164
" (Oliver Hill, Horsforth) ..	C. France, Esq.	3	0 9	250 ∇	29·36	206
Bingley (Gilstead Filters)	A. R. Binnie, Esq., C.E.	5	1 0	572 ∇	29·34	211
Leeds (Eccup South)	T. Hewson, Esq., C.E..	8	0 9	390 ∇	26·72	184
" (" " East)	" " "	8	0 6	375 ∇	29·43	184
† Bingley (Sunnydale)	A. R. Binnie, Esq., C.E.	5	1 0	975 ∇	29·35	190
Harewood (Arthington)	T. Hewson, Esq., C.E.	8	0 9	139 ∇	27·95	163
Skipton (Gill Grange, Silsden) ...M	A. R. Binnie, Esq., C.E.	5	1 0	883 ∇	27·90	...
" Ilkley	G. W. Worfolk, Esq.	5	1 0	312 ∇	31·03	174
† " (Cherry Bank)	H. Richardson, Esq. ...	8	1 3	600	33·64	...
Skipton (Silsden Reservoir)	A. R. Binnie, Esq., C.E.	5	1 0	560 ∇	27·13	170
Thornton-in-Craven	C. S. Wilson, Esq. ...	5	5 4	456 ∇	29·30	189
Leathley (Lindley Wood S)	T. Hewson, Esq., C.E..	8	0 6	312 ∇	30·77	204
" (" " N)	" " "	8	0 6	320 ∇	31·43	203
Slaidburn (Hareden Brook)	H. Reah, Esq.	8	1 2	540	58·99	...
" (Langden Brook)	" " "	8	1 2	556	59·48	...
" (Whiteholme)	W. K. Wilkinson, Esq.	5	1 3	475 ∇	43·29	161
Skipton (Cringles Reservoir) ...	A. R. Binnie, Esq., C.E.	5	1 0	760 ∇	29·22	170
" (Counter Hill)	" " "	5	1 0	951 ∇	26·36	...
" (Chelker Reservoir) ...M	" " "	5	1 0	730 ∇	30·30	...
† " (Craven Herald Office) ..	E. Townsend, Esq.	8	0 8	360	29·13	175
Slaidburn (Dunsop Houses)	J. B. McCallum Esq., C.E.	8	1 0	450 ∇	56·38	191
" (Middle Knoll)	" " "	8	2 6	1298 ∇	52·30	...
" (Brennand)	" " "	8	1 0	820 ∇	66·25	198
" (Whitendale)	" " "	8	1 0	830 ∇	66·26	197
" (Cabin Hill) ..	" " "	8	3 1	1559 ∇	62·69	...
" (Baxton Fell)	" " "	8	2 6	1540 ∇	49·91	...
York (Phil. Soc. Gardens)	The Meteor. Council ...	8	1 9	53 ∇	25·12	182
" (Bootham)	J. E. Clark, Esq.	5	0 5	50	23·04	...

DIVISION IX.—YORKSHIRE—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which 0.1 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
WEST RIDING—(con.)						
York (Cherry Hill)	H. Richardson, Esq. ...	5	1 6	60 T	23.88	167
D Wetherby (Ribston)	Mr. Jones	5	1 2	130 T	24.93	115
Fewston (Swinsty E)	T. Hewson, Esq., C.E.	8	0 6	460 T	38.80	196
„ („ W)	„ „ „	8	0 6	425 T	39.09	196
„ (Timble)	„ „ „	8	0 6	720 T	37.24	228
„ South	„ „ „	8	0 6	525 T	35.35	201
„ North	„ „ „	8	0 6	525 T	36.40	200
„ (Spinksburn)	„ „ „	8	0 6	620 T	34.26	212
Blubberhouses	„ „ „	8	0 6	525 T	38.59	217
Harrogate (West End Park) ...	J. H. Wilson, Esq.	5	1 0	412 T	29.36	185
„ (Service Reservoir) ..	E. W. Dixon, Esq. ...	8	2 0	455	24.39	...
„ (Haverah Park Res.) ..	„ „ „	8	2 0	620	27.74	...
Skipton (Barden Res.) <i>old g.</i> ...	A. R. Binnie, Esq., C.E.	8	1 2	746 T	37.57	224
„ („ „)	„ „ „	5	1 0	746 T	39.26	224
Otterburn-in-Craven	W. Gomersall, Esq. ...	5	1 0	510 T	32.82	176
West End (Thruscross)	T. Hewson, Esq., C.E.	8	0 6	900 T	37.79	218
Skipton (Upper Res., Barden) ...	A. R. Binnie, Esq., C.E.	5	1 0	1250 T	36.02	211
„ (Thorpe Fell „) ...M	„ „ „	5	1 0	1661 T	29.28	...
„ (Sandbed Beck, Burnsall) ..	„ „ „	5	1 0	676 T	38.39	...
Knaresborough (Conyngh'm Hall)	B. T. Woodd, Esq.	5	1 2	190 T	27.20	138
D „ (Farnham)	R. Elmhirst, Esq.	5	1 0	170 T	24.25	139
D Settle (Ashfield Gardens)	Mr. T. Green, Junr. ...	5	2 6	483 T	35.15	196
D „ (The Terrace)	J. W. Shepherd, Esq. ...	8	1 2	525 T	35.25	209
Pateley Bdg. (Grimwith Res) <i>old g.</i>	A. R. Binnie, Esq., C.E.	8	1 0	890 T	43.73	227
„ „ („ „)	„ „ „	5	1 0	893 T	43.63	227
„ „ („ „)	„ „ „	5	1 0	1201 T	32.99	...
D† Malham Tarn	Mr. Coulthard	5	1 0	1296 T	54.68	243
Settle (Clapham)	Rev. M. T. Farrer	8	5 7	565 T	33.70	212
Ripon (North Lodge)	F. D. Wise, Esq.	5	1 0	120	24.87	...
D Ingleton (Halsteads)	R. Chapman, Esq.	9	2 0	414 T	38.76	181
„ („ „)	„ „ „	5	1 0	413 T	34.19	181
Nidderdale (Ramsgill)	T. Hewson, Esq., C.E.	8	0 6	500	48.21	203
D† Arncliffe	Ven. Archdeacon Boyd	8	2 9	734 T	52.69	208
Nidderdale (Middlesmoor)	T. Hewson, Esq., C.E.	8	0 6	600	46.61	204
D Ripon (High Bank, Mickley) ...	Miss Harrison	5	1 0	225 T	30.92	224
Oughtershaw School	C. H. L. Woodd, Esq. ...	8	1 6	1175 T	60.52	...
D† Sedbergh (Brig Flatts)	J. Handley, Esq.	5	1 0	300 T	41.11	186
† „ (Thorns Hall)	Miss Sedgwick ...	5	1 0	400 T	43.02	196
EAST RIDING.						
Patrington (Spurn Head)	The Meteor. Council ...	8	1 0	27	20.13	186
D „	W. B. Pugh, Esq.	5	3 0	46 T	23.07	148
Hull (Nelholme, Ferriby)	W. R. King, Esq.	5	4 6	125 T	24.59	...
„ (Westcott Street)	Rev. H. P. Slade	5	5 0	8	24.82	...
D „ (Derringham)	W. Lawton, Esq.	5	2 2	10 T	24.78	206
D „ (People's Park)	Mr. E. Peak	5	0 6	6	23.73	201
D Hedon (The Vicarage)	Rev. J. H. Richardson	5	1 0	...	23.15	201
Brough (Brantinghamthorpe) ...	Mr. R. C. Kingston	5	2 0	200 T	30.54	...

DIVISION IX.—YORKSHIRE—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
EAST RIDING—(con.)						
D Cottingham.....	J. H. Hill, Esq.....	8	1 3	26	24·58	181
Market Weighton (Houghton)...	Canon J. Wells	5	1 0	175 †	27·12	...
Beverley (Alexandra Terrace)...	T. Dyson, Esq.	12	6 0	62 †	25·37	178
D „ (Hull Bridge)	J. Tiffen, Esq.	5	2 6	11 †	23·85	195
D Market Weighton (Dalton Hall)	Mr. J. Allsop	8	1 4	150 †	27·96	166
D Holme-on-the-Wolds.....	Mrs. Harland	5	4 0	154 †	25·30	134
Middleton-on-the-Wolds	Rev. H. D. Blanchard..	5	1 0	150 †	28·42	192
D Brandesburton (Hempholm).....	J. Tiffen, Esq.	5	2 6	11 †	22·64	207
D Pocklington (Warter)	J. Coxon, Esq.	5	1 10	230 †	31·82	186
Catton Rectory [York]	Rev. H. L. Puxley ...	5	1 0	50 †	25·83	...
D Driffield (Beverley Road).....	Rev. J. T. Harwood ...	8	8 0	68 †	23·98	190
„ (York Road)	J. Lovel, Esq.	5	1 0	...	25·24	...
Wetwang	Rev. E. M. Cole	5	1 0	235 †	26·94	175
D Thixendale	Rev. W. H. Fox	10	0 9	425 †	32·31	197
D Lowthorpe (The Elms)	H. Onslow Piercy, Esq.	5	1 0	63 †	26·35	211
Bridlington Quay	Mr. J. Draffin	5	1 6	40 †	18·92	122
D Hunmanby (Foxholes Rectory)...	Rev. R. H. Foord	5	1 0	234 †	36·54	222
„ (Wold Newton)	Rev. T. S. Ackland ...	5	1 6	194	33·31	193
NORTH RIDING.						
† Malton	H. Hurtley, Esq. ...	10	1 0	75 †	25·03	...
Melmerby (Baldersby)	W. Gregson, Esq.	5	1 0	101 †	23·07	151
D Oswaldkirk (The Hermitage) ...	R. Thompson, Esq. ...	5	0 8	425	23·97	111
D Thirsk (Sowerby)	C. M. Swarbreck, Esq..	5	1 0	105 †	22·66	158
„ „ (Rose Cottage)...	A. C. Bamlett, Esq. ...	5	1 0	118	23·66	162
D Masham (Burton House)	B. Carter, Esq.	6	1 0	269 †	28·33	112
D Pickering (The Rectory)	Rev. G. H. Lightfoot..	5	1 0	150	26·24	201
D Bedale (Thorpe Perrow)	Mr. W. Culverwell ...	5	1 6	170	25·67	151
Hawes Junction.....	The Meteor. Council ...	8	1 0	1135	58·79	240
D Aysgarth Vicarage.....	Rev. F. W. Stow	8	1 0	659 †	38·24	192
Leyburn	G. W. Wray, Esq.....	7	1 0	660 †	36·95	...
„ (Bolton Hall)	Mr. E. Hall.....	8	0 8	420	33·01	...
„ „ „ „	„ „	5	1 0	420	32·74	126
D Scarborough (West Bank)	W. Robinson, Esq.....	8	1 0	160 B	29·24	208
Hambleton Hills (High Paradise)	A. C. Bamlett, Esq. ...	5	1 0	1050	23·34	...
D† Hawes (Hardrow Vicarage)	Rev. R. Pinck.....	5	1 0	790 †	46·73	223
„ (Shaw Paddock, Lunds)...	„ „	5	1 0	1100 †	67·31	...
* Northallerton (The Lodge)	J. Hodgson, Esq.	5	1 3	133 †	20·43	...
Catterick (Tunstall)	J. Marshall, Esq.	5	1 0	275	19·76	...
Richmond (The Grove)	G. Roper, Esq.	5	1 3	...	29·26	...
Northallerton (Rounton Grange).	The Royal Meteor. Soc.	8	1 0	250	21·86	180
Robin Hood's Bay (Fylingdales Vic)	Rev. R. J. Cooper	5	0 5	120	30·74	...
D Ingleby Manor	The Hon. H. Sidney ...	5	0 11	440 †	31·41	179
D „ Greenhow Vicarage.....	Rev. J. Hawell	5	1 0	448 †	28·55	193
D East Layton [Darlington]	Mrs. Maynard-Proud...	5	1 0	575 †	26·86	155
D Richmond (Forcett Park)	J. Michell, Esq.	5	1 0	360 †	26·99	205
Whitby (Guisborough Road) ...	M. Simpson, Esq.	5	2 0	184 †	26·22	170
Bowes	G. J. Symons, Esq. F.R.S	8	1 0	...	29·60	...

DIVISION IX.—YORKSHIRE—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fell."
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft in.	feet.	inches.	
NORTH RIDING—(con.)						
Guisborough (Hutton Hall)	Sir J. W. Pease, Bt., M.P.	5	1 3	400 T	30·02	183
D " (Lockwood Beck Res)	W. P. Anson, Esq., C.E.	8	1 0	632 T	32·96	188
Middlesborough (Albert Park)	T. Hallam, Esq.	8	2 0	30	21·10	...
Saltburn (Skelton Reservoir)	W. P. Anson, Esq., C.E.	8	1 0	325 T	23·89	...
D Mickleton	G. J. Symons, Esq. F.R.S	8	...	...	29·46	149
† " (Lime Kiln Pasture) M	" " " "	8	1 0	1175 T	27·80	...
† " (" " " ") M	" " " "	8	1 0	1175 T	31·45	...
Redcar (Kirkleatham)	W. Stainthorpe, Esq MD	...	...	...	24·42	181

DIVISION X—NORTHERN COUNTIES.

DURHAM.

D Darlington (Hurworth Grange) ..	J. E. Backhouse, Esq. ..	5	1 0	161 T	22·13	185
" (Dinsdale Rectory) ..	Rev. J. W. Smith	5	2 0	54	21·90	130
D " (South End)	Mr. N. Black	8	0 10	140	22·73	179
D† " (Cleveland Parade) ..	S. Hare, Esq.	5	1 0	160 T	22·33	186
D Barnard Castle (Whorlton)	Miss Dodgson	5	0 11	424 T	28·37	146
D Darlington (Brinkburn)	Mr. H. Waud	8	1 6	165 T	21·70	136
D† Staindrop (Raby Castle)	Mr. J. Tullett	8	0 8	460 T	27·25	125
D Witton-le-Wear (Witton Tower) ..	W. R. I. Hopkins, Esq.	5	0 8	420	31·06	145
D Hartlepool (Heugh Lighthouse) ..	W. Belk, Esq., C.E. ...	5	0 6	34 T	21·18	182
D " (Hurworth Burn) ..	T. Fenwick, Esq., C.E.	5	0 7	360	26·67	115
D " (Hart Reservoir)	" " " "	8	0 9	164	22·71	118
D† Wolsingham	Mr. A. Mitchell	5	1 0	464 T	35·15	212
Thornley Vicarage	Rev. W. Mayor	5	1 0	475 T	29·25	178
Durham	The Meteor. Council ...	12	4 0	340	27·34	207
D " (Ushaw College)	Rev. J. Corbishley	5	0 10	600 T	30·34	186
Weardale W.W. (Waskerley 6)	R. Askwith, Esq., C.E.	8	4 2	1229 T	26·45	...
" " { " 3)	" " " "	8	4 6	1433 T	27·38	...
" " { " 4)	" " " "	8	4 7	1321 T	27·31	...
" " { " 5)	" " " "	8	4 2	1244 T	26·87	...
" " { " 2)	" " " "	8	4 5	1367 T	26·30	...
" " { " 1)	" " " "	8	4 4	1317 T	26·36	...
D Seaham Harbour Cemetery	Mr. R. Leith	8	1 6	150	27·96	196
Seaham Vicarage	Rev. A. Bethune	5	0 6	80 T	27·01	...
D " Hall	Mr. R. Draper	5	1 0	100 T	30·31	144
Houghton-le-Spring (Myre Hall) ..	D. Balfour, Esq., C.E.	5	1 0	261 T	28·72	180
D Shotley Bridge	Mr. J. Coulson	5	0 8	345 T	36·60	156
D Chester-le-Street (Birtley)	R. C. Clephan, Esq. ...	5	0 9	205 T	26·98	204
Sunderland (W. Hendon Ho) No. 2.	T. W. Backhouse, Esq.	5	1 0	130 T	26·59	...
" { " " } No. 4.	" " " "	5	1 0	130 T	27·02	...
" { " " } No. 5.	" " " "	5	1 0	130 T	26·49	...
D " (Fever Hospital) ...	Dr. A. E. Harris	8	0 8	109 T	26·54	165
D Gateshead (Eighton Cottage) ...	Miss Favell	5	2 6	515	26·89	186
D South Shields (Borough Hospital)	J. R. Boyce, Esq.	5	1 0	90 T	25·36	165

DIVISION X.—NORTHERN COUNTIES.—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain 1888	Days on which "01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
NORTHUMBERLAND.						
D Haltwhistle (Shaft Hill)	Mr. R. Hetherington ...	5	0 8	626 †	33·50	145
D " (Unthank Hall)	Rev. Dixon Brown	5	0 9	380 †	30·92	184
D Haydon Bridge (Ridley)	Rev. G. Reed	5	2 8	340 †	34·67	185
D Newcastle (Clifton Road)	R. Foster, Esq.	8	1 6	314 †	26·96	173
D " (" ")	" " " "	5	1 0	314 †	27·09	...
D " (Osborne Road)	T. G. Hurst, Esq.	5	0 8	170 †	27·21	161
D " (Philos. Society)	W. Lyall, Esq.	8	1 7	105 †	27·93	...
D " (Gladstone Terrace)	W. Smurthwaite, Esq. ...	2	6 0	156 †	26·58	114
D " (Portland Road)	Mr. T. Bone	4	9 6	...	26·29	128
D " (Town Moor)	Mr. W. Neill	5	0 6	201 †	28·23	170
D " (Wellburn, Jesmond)	W. H. Holmes, Esq. ...	5	1 6	161 †	25·47	169
North Shields (Wallsend)	R. R. Dees, Esq.	10	0 6	100 †	24·48	...
D " (Post Office)	The Meteor. Council ...	8	1 4	100	22·57	169
D† " (Rosella Place)	R. Spence, Esq.	8	1 0	124 †	24·18	168
D " (Low Lights)	H. R. Procter, Esq. ...	8	3 4	22 †	22·21	...
D " (Tynemouth)	P. J. Messent, Esq., C.E. ...	5	1 8	65 †	22·41	183
D " (Clementhorpe)	H. R. Procter, Esq. ...	5	1 0	150 †	23·89	168
Bingfield House	J. Coppin, Esq.	5	1 0	445 †	23·77	168
Newcastle and Gateshead W. Works { Whittle Dean	G. Smith, Esq.	10	...	...	22·93	...
{ Swinburn (Woodford)	" " " "	10	0 6	500 †	30·35	...
{ North Tyne (Green Crag) ...	" " " "	10	0 6	800 †	26·95	...
{ " " Valley	" " " "	10	0 6	300	25·04	...
{ Hallington	" " " "	10	0 6	469 †	27·75	...
{ " (Fawcett)	" " " "	10	0 6	563 †	26·99	...
{ Gunnerton Burn (Camphill) ..	" " " "	10	0 6	676 †	28·55	...
Cramlington	The Roy. Meteor. Soc. ...	5	1 1	256	27·17	200
D Morpeth (Meldon Park)	Mr. J. Finlay	5	1 0	...	30·06	166
D " (Bothalhaugh Garden)	Hon. & Rev. W. C. Ellis ...	5	0 10	35 †	28·22	200
D " (" ")	" " " "	...	...	...	25·32	...
Rothbury (Brenckburn Priory) ..	A. H. Cadogan, Esq. ...	8	1 2	257 †	30·33	...
D " (Crag-side)	Lord Armstrong, C.B. ...	8	1 0	400 †	34·49	141
D Alwinton (Harbottle Castle) ...	Mr. R. Elliott	5	1 0	500	34·19	163
D " (Biddleston Hall)	P. Dodds, Esq.	5	1 0	820 †	36·74	167
D Alnwick (Belle Vue House)	J. J. Horsley, Esq. ...	5	1 0	304 †	24·76	169
D " Castle	The Meteor. Council ...	5	0 4	178	29·24	...
D " (Glanton Pyke)	F. W. Collingwood, Esq. ...	8	4 4	517	29·28	...
D Howick Hall	Rt. Hon. Earl Grey, K.G. ...	8	0 10	121 †	25·39	171
D Iderton (Lilburn Tower)	E. J. Collingwood, Esq. ...	10	6 0	300 †	26·42	...
D Cheviot (Broadstruther)	G. P. Hughes, Esq. ...	8	4 0	1692 †	118·13?	...
D Bamburgh	Mr. W. C. Good	5	1 0	75 †	22·85	167
D Pawston [Coldstream]	B. P. Selby, Esq.	8	1 0	328 †	27·63	212
D Wooler (Milfield)	G. Grey, Esq.	5	0 8	200 †	26·63	...
CUMBERLAND.						
Ravenglass (The Grove)	J. Ross, Esq.	5	2 6	80 †	37·44	143
D " (Irtside, Holm Rook)	J. D. Watson, Esq. ...	10	3 6	...	32·44	...
Braystones	W. H. Watson, Esq. ...	10	3 6	36	29·46	...
Sprinkling Tarn	Mr. E. Wilson	4	0 6	1985	147·15	...

DIVISION X.—NORTHERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
CUMBERLAND—(con.)						
Wastdale Head	M. Mr. E. Wilson	4	0 6	204 T	73·20	...
Styehead Tarn	M. " "	4	0 6	1472 T	102·95	...
†The Stye	M. " "	4	0 6	1077 T	175·40	...
Gable Hawes	M. " "	8	...	1077 T	78·56	...
†Seathwaite	M. G. J. Symons, Esq. F.R.S.	4	0 6	422 T	118·19	...
d† "	" "	5	1 0	423 T	119·89	202
"	The Roy. Meteor. Society	5	0 10	422 T	118·53	202
*† "	M. John Marshall, Esq. ...	5	1 0	420 T	114·63	...
Ullscarf	M. G. H. Hill, Esq., C.E..	7	1 0	2100 T	112·10	...
d Whitehaven (The Floss, Cleator)	D. Ainsworth, Esq. M.P.	5	1 11	208 T	40·37	162
†Wythburn Vicarage	Rev. Basil R. Lawson..	5	1 0	574 T	96·64	153
†Helvellyn (Birkside)	M. G. H. Hill, Esq., C.E..	7	1 0	1900 T	79·70	...
†Wythburn	M. " " "	7	1 0	580 T	83·00	...
d Borrowdale Vicarage.....	Rev. J. Taylor	5	1 0	330 T	95·32	225
d†Buttermere (Hassness)	Mr. S. Stewart	5	1 0	355	96·04	215
†Watendlath	M. G. J. Symons, Esq., FRS.	8	1 0	867 T	85·00	...
† "	" " "	5	1 0	867 T	84·90	...
Borrowdale (Grange)	Mr. Threlkeld	5	0 9	271 T	84·83	200
Armboth	G. H. Hill, Esq., C.E..	7	1 0	550 T	72·70	...
†Whitehaven (Irish Street)	Dr. P. Anson	5	1 1	21 A	34·77	148
d Arlecdon (Kirklandhow)	J. B. Wilson, Esq., C.E.	5	1 0	500 T	43·96	170
d Keswick (Barrow House)	Miss Langton	8	0 6	282	70·76	213
Loweswater (Waterend)	Mrs. Jackson	5	1 0	432 T	49·36	212
Ullswater (Hallsteads)	A. Marshall, Esq.	10	4 0	490 T	49·59	...
†Keswick (Deer Close)	John Marshall, Esq. ...	7	1 9	300 T	55·44	206
† " (Derwent Island) ...old	" " "	5	0 7	280 T	48·28	232
" " " ...new	" " "	5	0 6	290	51·70	232
d† " (Post Office=Bank) ...	J. F. Crosthwaite, Esq.	8	6 4	270 T	54·11	214
† " " " " "	" " " "	5	1 0	265	51·64	214
d† " (Shu-le-crow)	Miss Mitchell	5	0 7	296 T	54·65	208
Whitehaven (Gillgarron Hall) ...	Mr. D. Galloway	5	4 9	470 T	39·93	201
d Cockermouth (Whinfell Hall) ...	W. Robinson, Esq. ...	5	2 0	265 A	45·61	225
d " (Brandlingill)	Col. F. R. Sewell	5	1 0	320 A	44·73	211
†Threlkeld Rectory	Rev. J. Brunskill	5	4 0	488 T	38·64	191
" (Settra)	" " "	5	1 0	840	45·50	...
" (Blencathra)	" " "	5	1 0	1400	56·00	...
d†Bassenthwaite (Mirehouse)	Lady Jane Spedding ...	5	0 6	300 T	42·83	180
Brigham (Broughton Cross).....	L. Wilson, Esq.	5	1 6	147 T	33·59	...
d†Cockermouth (Derwent House)...	Mrs. Dodgson	5	...	144	33·27	142
d† " (Higham)	Rev. Canon Hoskins ...	5	1 0	478 A	37·72	199
d " (Broughton Grange)	G. S. Wilson, Esq. ...	5	1 3	209 A	33·85	201
Penrith (Culgaith Vicarage) ...	Rev. G. W. Atkinson..	5	0 5	500 T	25·84	...
" " " " "	" " " " "	5	0 10	500 T	26·09	...
d " (Nandana)	G. Varty Smith, Esq...	5	4 0	625 T	28·35	186
† " (Fell Lane, Fir Bank) ..	T. Lester, Esq.	5	1 0	575 T	29·41	174
" (Greystoke)	A. Tremayne Buller, Esq	5	...	...	37·32	...
d† " (Newton Reigny).....	T. G. Benn, Esq.	8	1 0	580 A	32·75	205
† " (" " ").....M	" " " " "	8	1 0	580 A	33·05	...

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fell
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
CUMBERLAND—(con.)						
Penrith (Edenhall Vicarage) ...	B. W. Lovejoy, Esq.	5	1 4	310 T	26·01	194
„ (Kirkland Vicarage) ...	Rev. A. Edwards	5	...	...	32·13	...
Blencowe School.....	T. Fawcett, Esq.	8	0 9	601 B	33·33	200
Hesket Newmarket (Hutton Roof)	A. Amos, Esq.	5	1 0	1010	40·59	168
Maryport (Netherhall)	H. P. Senhouse, Esq.	8	0 6	27 A	31·79	162
Kirkoswald (Melmerby)	Rev. A. C. Pittar ..	5	0 8	...	28·91	...
Mealsgate (Uldale Rectory)	Rev. J. Greenwood ...	5	1 4	550	38·96	168
Hesket Newmarket	Mr. J. Wilson ..	5	1 0	600 T	39·32	...
Aspatria (Brookfield)	M. Lidbetter, Esq.	5	0 9	124 A	27·72	202
Carlisle (Wreay Vicarage)	Rev. T. Lees	5	2 0	310 T	26·24	212
„ (Cemetery)	S. Cartmell, Esq.	8	4 0	114 A	26·97	163
„ (Rose Hill)	C. Lonsdale, Esq.	8	1 0	102 A	26·06	161
„ (Rickerby House)	M. MacInnes, Esq., M.P.	8	1 2	50	23·03	...
„ (Castletown).....	Mr. A. Smith	5	...	...	28·94	132
Brampton (Denton House)	Mr. J. Charlton	5	1 2	542 T	29·62	199
WESTMORELAND.						
Arnside	J. P. Drewett, Esq. ...	5	0 6	20	38·42	189
Kirkby Lonsdale	Mr. W. Harrison	5	1 2	209	40·35	...
Witherslack (Halecote)	Rev. J. E. Cross.....	5	1 0	100 T	42·37	...
Kendal (Natland Park).....	A. J. Shipley, Esq. ...	5	1 0	160 T	43·88	214
„ (Kent Terrace).....	R. J. Nelson, Esq.	5	1 6	146 T	43·04	203
„ (Underfell)	No. 2 F. Wilson, Esq.	8	1 0	300 B	43·40	168
„ („)	M No. 3 „ „ „	8	1 0	300 B	43·97	...
„ (Hawesmead)	G. F. Braithwaite, Esq.	8	0 6	175 A	41·94	207
„ (Ellergreen)	Mr. M. Jenner	5	1 3	290 T	50·17	234
Bowness (Fallbarrow)	Rev. A. Rawson	8	1 0	135 T	55·64	194
Longsleddale	Rev. W. Burrows	5	1 0	512 T	66·04	163
Ambleside (Nook Cottage)	Mr. E. Hird	5	1 0	227 A	71·05	229
„ (Lesketh Howe)	F. M. T. Jones, Esq. ...	5	2 6	175 T	79·00	207
Grasmere (High Close)	E. B. W. Balme, Esq. ...	8	0 9	553 T	71·60	197
„ (Pavement End)	T. A. Green, Esq.	5	4 8	218 T	69·48	208
Ravenstonedale (Brownber)	J. Fothergill, Esq.	5	3 0	826 T	37·68	165
Orton Vicarage	Rev. E. Holme	5	3 6	770 T	51·89	183
Kirkby Stephen	T. Mason, Esq.	5	1 0	574 T	38·38	170
Shap (Sleddale)	M Mr. W. Hoggarth	5	1 0	1560 T	70·35	...
„ (Swindale)	M „ „	5	1 0	1610 T	81·55	...
Haweswater (Mardale Green). M	G. J. Symons, Esq., F.R.S	5	1 0	780 T	92·00	...
Shap (Copy Hill)	Mr. W. Hoggarth	5	1 0	852 A	52·80	233
„ („ Hall)	M „ „	5	1 0	852 A	52·80	...
Patterdale Hall	Mr. A. Milne	7	1 3	490 T	85·38	203
„ (Greenside Mine).....	Mr. T. Taylor.....	7	1 6	1000 T	91·80	...
Crosby Ravensworth (Reagill)...	Mr. Wilkinson	8	0 6	890 T	37·81	146
Appleby	Dr. Armstrong	5	1 0	442 A	30·62	198
Ullswater (Swarth Fell)	M G. J. Symons, Esq. F.R.S.	8	1 6	1000 T	51·00	...
„ („)	„ „ „	5	1 0	1000 T	52·50	...
Lowther Castle [Penrith]	Mr. F. Clarke	8	3 6	750 T	35·85	136
Barton Hall [Penrith]	J. H. Cumpston, Esq. ...	5	...	...	40·60	144

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which 1.01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
MONMOUTH.						
D Marshfield (Llwynarthan)	F. G. Evans, Esq.	5	1 0	72 B	38.72	185
D Caerleon (Coldra)	E. A. Lee, Esq.	5	1 3	180	37.81	183
D Chepstow (Shirenewton Hall) ..	E. J. Lowe, Esq., F.R.S.	8	1 0	530 T	43.28	208
D Llanfrechfa Grange	F. J. Mitchell, Esq. ...	5	4 0	326 A	43.02	175
Tredunnoch	Rev. C. T. Salusbury...	5	2 3	170 A	37.55	179
D Chepstow (Piercefield Park).....	H. Clay, Esq.	5	1 6	270	36.76	177
Llangibby Rectory	Rev. F. L. Salusbury..	5	3 6	...	38.94	171
D Usk (Porthycarne).....	D. Lawrence, Esq.	8	4 4	58	40.53	200
D Tredegar (Bedwellty House) ...	J. Colquhoun, Esq. ...	8	1 6	972 A	57.63	204
D „ (The Willows)	G. A. Brown, Esq.	8	1 0	1024 T	60.06	201
Blaenavon	C. White, Esq.	5	0 9	980	54.46	...
D Ebbw Vale (The Firs)	R. S. Jordan, Esq.	5	1 0	1060 A	56.76	208
D Monmouth (The Hendre).....	J. M. Rolls, Esq.	8	1 0	180 T	34.19	195
Abergavenny (Larchfield)	Dr. Glendinning	5	1 0	240 B	42.86	181
„ (Dyne House)	Dr. Steel	5	1 3	220	42.88	207
D „ (The Chain).....	W. Baker Gabb, Esq... 5	2 6	250	44.10	218	
D Llantilio Court	Sir H. M. Jackson, Bt. 5	0 10	207 A	39.21	159	
D Monmouth (Pentwyn)	Rev. J. T. Harding ... 5	1 0	191 B	33.49	156	
GLAMORGAN.						
* Cowbridge (Fonmon Castle).. ...	O. H. Jones, Esq.	8	1 2	130	31.33	...
„ (The Ham)	G. W. Nicholl, Esq. ...	8	1 6	96 T	26.96	131
Cardiff (Cogan Pill, Landough)..	J.A.B. Williams, EsqCE	5	1 0	122 A	35.54	170
D „ Castle.....	Mr. A. Pettigrew	5	1 0	38 A	37.40	192
Cowbridge (Ash Hall)	D. Owen, Esq.	8	1 0	315 A	41.69	203
D Cardiff (Ely)	J.A.B. Williams, EsqCE	8	1 0	53 A	41.74	196
„ (Lisvane)	„ „ „	5	1 0	136 A	38.29	186
„ (New Filters, Heath)....	„ „ „	5	...	132	40.53	...
„ (Llanishen Res)	„ „ „	..	...	155	40.46	...
Pontypridd (Craig-y-nos Res.)...	Mr. W. Jones.....	5	1 0	1110	72.76	203
D Oystermouth (Newton)	Rev. S. Jones	5	0 9	279 T	43.40	229
D Swansea (Sketty)	T. T. Wood, Esq.	5	1 0	280	46.30	212
D „ (South Dock Lock).....	Swansea Harbour Trust	12	14 9	40	41.88	191
D Neath	E.C. Pole, Esq.	5	1 0	204 A	45.58	215
Swansea (Morriston)	E. Rice Morgan, Esq... 5	1 0	89	47.77	201	
D Neath (Fairy Land)	E. Ll. Green, Esq. ... 5	1 9	170 B	46.47	218	
D „ (Cadoxton).....	F. W. Aylwin, Esq. ... 5	1 0	60	48.67	207	
D† „ (Glyncorrwg)	T. F. Brown, Esq. 5	4 6	717	81.39	222	
D Mountain Ash (Maesydderwen)..	M. Morgan, Esq. 5	1 0	483 A	58.03	195	
Treherbert	Sir W. T. Lewis, C.E... 5	1 0	670	78.11	201	
Castell Lluchwr (Penllergare)...	J. T. D. Llewellyn, Esq. 5	4 0	240 T	46.09	195	
Aberdare (The Mardy)	Sir W. T. Lewis, C.E... 5	2 2	431 A	60.43	199	
D† „ (Abernant).....	Evan Jones, Esq. ... 5	4 6	425	51.26	190	
D Felindre (Lliw Reservoir).....	R. H. Wyrill, Esq., C.E. 8	1 6	426 T	53.82	207	
D Dowlais (Cwm Bargoed)	G. A. Lundie, Esq., C.E. 5	1 0	1237 A	42.65	205	
D Ystalyfera (Tan-yr-allt)	D. H. Lewis, Esq. 8	1 6	300 L	62.70	189	

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(continued).

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DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
RADNOR—(con.)						
New Radnor (Ednol)	Col. Pearson	5	0 8	930	44·96	213
Llandegley (Gwern-i-Arglwydd)	„ „	5	2 6	1000	38·87	204
Pen-y-bont	„ „	5	3 6	750	35·51	192
d Rhayader (Nantgwillt)	R. L. Lloyd, Esq.	5	1 0	767 B	58·84	201
MONTGOMERY.						
Llangurig (Esgair Clochfan) ...	G. J. Symons, Esq., FRS	5	1 2	1330	58·20	...
† „ (Ystrad-olwyn-fawr) ...M	„ „ „ „	8	1 0	950	43·70	...
d Llanidloes (Broomcliffe)	E. Powell, Esq.	5	1 0	650 T	39·81	230
d Newtown (Dolfor)	W. B. Pugh, Esq.	5	0 3	1027 T	39·49	206
d Churchstoke (Mellington Hall) ..	P. Wright, Esq.	5	1 6	540 A	29·93	175
„ „ „ „)M	„ „ „ „	5	1 6	540 A	29·92	...
Dylife Lead Mine	G. J. Symons, Esq., F.R.S.	5	1 0	1400 T	50·90	...
d Carno (Llanwnnog)	Rev. D. Parry	5	1 4	...	28·08	160
d† „ (Tybrith) ..	Miss Marsh	5	1 0	595 T	41·09	210
d Welshpool (Powys Castle)	Mr. Huntley	8	1 6	...	29·47	160
Garthbibio ((Bwlch Tomlyd) ...	G. J. Symons, Esq., FRS.	5	1 2	1370	76·80	...
d Welshpool (Pool Quay Vic.)	Rev. R. J. Roberts ...	5	1 0	335	25·68	192
FLINT.						
d Hawarden	Dr. Burlingham	5	1 0	245 T	27·91	195
d† Flint (Soughton Hall, Northop).	J. Scott Bankes, Esq. ...	5	1 2	418	28·74	190
St. Asaph (Nantllys)	P. P. Pennant, Esq. ...	5	1 0	173 A	21·60	...
d† Halkyn	Capt. Williams	5	1 3	895 A	29·40	192
d Holywell (Bagillt)	A. O. Walker, Esq. ...	5	1 6	20 T	25·94	190
d Rhyl (Sedgley House)	W. T. Girdlestone, Esq.	5	2 6	21 A	20·87	160
Prestatyn (Nant)	T. G. Dixon, Esq.	5	1 2	30 P	24·31	196
DENBIGH.						
d Ruabon (Penycae Reservoir) ...	G. E. Woodford, Esq. ...	5	1 0	660 T	31·19	154
d „ (Wynnstay)	Mr. Middleton	12	3 0	484 A	29·44	195
Llangollen (Plas Berwyn)	Col. Tottenham	5	0 5	440	46·28	186
Cerrig-y-druidion	C. S. Mainwaring, Esq.	5	1 0	890 T	42·00	213
Wrexham (Pack Saddle Res.) ...	F. Storr, Esq.	5	0 9	370 A	30·67	169
„ (Cae Llwyd Res.) ...	„ „ „	8	0 9	918 A	34·95	180
„ („ „ „) ...	„ „ „	5	0 9	918 A	35·58	180
d Rosset (Trevalyn Hall)	Capt. Griffith Boscawen.	5	1 0	58 A	22·82	181
d Llangerniew (Hafodunos)	H. R. Sandbach, Esq. ...	5	1 0	512 T	38·90	189
† Nannerch (Penbedw Hall)	Mr. W. McMurray ...	8	0 6	650 T	30·07	...
d Denbigh (Garn)	W. D. W. Griffith, Esq.	5	0 10	457 T	26·80	198
d Eglwys-Bach (Bodnant)	Mr. C. Ashby	8	2 6	102 A	33·67	171
Colwyn Bay (Nant-y-Glyn) ..	A. O. Walker, Esq. ...	5	2 3	180 A	26·95	184
„ (Bryn Euryn)	Mr. T. Hutchings	5	1 0	125 T	26·47	172
MERIONETH.						
† Dolgelly (Brithdir)	J. Hill, Esq.	5	1 6	465 T	59·30	...
Trawsfynydd	Major Mathew	5	0 7	780	55·92	158
d Bala (Eryl Arran)	E. Jones, Esq.	8	1 0	590 T	50·49	169

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which .01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
MERIONETH—(con.)						
D Llanderfel (Palé Gardens)	Mr. T. Ruddy	8	1 0	606 $\nearrow$	40·98	222
Rhiwbryddir	Major Mathew	5	10 0	1100	86·16	178
D Corwen (Rhug Gardens)	Mr. J. Bennett	5	1 0	500	29·62	156
CARNARVON.						
Pwllheli (Bodfaen)	Major Mathew	5	5 0	80	43·95	173
*Llanystumdwy (Talarvor)	" "	5	3 0	50	32·29	173
D†*Port Madoc	" "	5	3 0	10	48·12	173
Llandwrog (Glynllivan Park) ...	Hon. F. G. Wynn.....	5	1 0	80 $\nearrow$	41·35	...
D " (" Garden) ...	" "	5	1 0	160	43·61	236
" (" Fort)	" "	8	1 0	170	41·07	...
Pen-y-gwryd.....	Mr. H. Owen	8	1 0	880	89·00	152
Carnarvon (Belan Fort).....	Hon. F. G. Wynn.....	5	1 0	12	27·56	...
" (Cocksidia)	Major Mathew	5	1 0	120	34·65	197
D Dinorwic Quarry	" "	5	4 0	850	58·11	192
D Llanbedr-y-Cennin (Llyndulyn)	T. T. Marks, Esq., C.E.	8	1 6	1622 $\uparrow$	76·85	174
Llanfairfechan	R. Luck, Esq.	5	0 8	150 $\mathcal{B}$	33·49	189
D†Llandudno (Warwick House) ...	Dr. Nicol	8	0 8	99 $\nearrow$	25·89	206
ANGLESEA.						
D Llangadwaladr (Bodorgan)	Mr. J. Gray	8	3 6	...	31·26	167
Holyhead	The Meteor. Council ...	...	...	...	28·82	224
LlanerchymeddLlwydiarthEsgob	T. Prichard, Esq.	5	1 0	112 $\mathcal{L}$	30·28	233
ISLE OF MAN.						
Castletown (Langness)	Bd. of Northern Lights	...	...	...	26·50	...
Derbyhaven	A. W. Moore, Esq.....	5	1 0	20	29·46	168
D Douglas (Derby Square)	P. Killey, Esq.	5	1 1	78	34·09	180
D " (Victoria Road)	H. Story, Esq.	8	1 0	120 $\mathcal{L}$	38·03	195
" (Prospect Hill).....	T. Keig, Esq.....	5	1 0	85	33·51	196
D " (Cronkbourne)	A. W. Moore, Esq. ...	8	0 10	138 $\nearrow$	39·26	196
" (Clypse, Onchan)	" "	8	1 0	439 $\uparrow$	44·03	...
Peel.....	" "	5	1 0	210 $\uparrow$	35·06	181
The Dhoon	" "	5	1 0	450 $\uparrow$	49·35	193
Ramsey	" "	5	0 9	30	43·53	183
Andreas	Rev. F. Lamothe	5	0 6	72 $\uparrow$	31·07	189
Point of Ayre.....	Bd. of Northern Lights	...	...	...	28·38	108
ISLES OF SCILLY.						
St. Mary's	The Meteor. Council ...	8	1 6	77 $\mathcal{L}$	29·28	233
†Tresco Abbey	T. A. D. Smith, Esq....	12	3 0	30	30·80	194
JERSEY.						
St. Helier (Hastings Terrace) ...	W. L. Lancaster, Esq.	5	1 0	21	31·67	181
St. Aubins (Noirmont)	The Meteor. Council ...	8	1 0	270	34·85	205
GUERNSEY.						
D Les Ruettes Brayes (Le Hechat)	A. Collenette, Esq. ...	5	1 0	255 $\mathcal{L}$	36·03	230
" " (" ")	" " "	5	1 0	255 $\mathcal{L}$	35·78	...

SCOTLAND.

DIVISION XII.—SOUTHERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which -01 or more fell.
		Diameter	Height Above Ground.	Height Above Sea Level		
WIGTON.						
Mull of Galloway	Bd. of Northern Lights ...		...	...	28·53	...
d Garliestown (Galloway Ho.).....	Mr. J. Day.....	5	4 6	20 ?	34·12	171
Stoneykirk (Ardwell House).....	M. J. Stewart, Esq., M.P.	8	1 0	150	28·97	...
Loch Ryan Lighthouse	Bd. of Northern Lights ...		...	...	28·19	137
Corsewall	„ „ „ ...		3 4	22 ?	25·44	101
KIRKCUDBRIGHT.						
Little Ross	Bd. of Northern Lights ...		3 3	130 ?	22·90	...
St. Mary's Isle ...	Mr. Browning	5	0 4	...	38·53	...
Auchencairn (Torr House)	W. Ovens, Esq.	5	0 8	30	34·88	...
Dalbeattie (Colvend Manse).....	Rev. J. Fraser	5	1 6	120 †	28·60	...
Twynholm (Cally).....	A. Buchan, Esq.....	5	1 0	140	39·59	166
*Dalbeattie (Station Road).....	Mr. W. McBride	5	0 10	50	39·75	134
d Cargen [Dumfries]	P. Dudgeon, Esq.	5	0 4	80 †	35·79	159
d New Galloway (Glenlee)	Mr. W. Melville.....	5	1 3	208	56·57	200
Irongray (Drum Park)	D. J. Kay, Esq.	3	0 8	230	47·20	...
DUMFRIES.						
d Dumfries (Crichton Inst.).....	W. N. Smith, Esq. ...	5	0 4	159 †	30·54	154
d „ (Ivy Bank).....	Rev. W. Andson	5	0 10	70 †	35·91	195
Canobie (Byreburnfoot).....	W. Doughty, Esq.....	3	0 8	160	35·88	...
d Lockerbie (Castlemilk).....	The late Mr. J. Dickson	5	1 0	200	34·83	177
Langholm (Westwater).....	Mr. W. Elliot.....	5	2 0	550 †	49·30	...
„	Mr. D. Elder	5	1 0	270 †	46·47	192
Moniaive (Maxwelton House) ...	Rev. Sir E. Lawrie, Bt.	8	1 2	400 †	45·63	169
„ („ Garden)...	„ „ „	5	1 4	380	45·74	170
Langholm (Ewes School)	Mr. J. C. Lyall	3	1 0	445 †	49·55	...
„ („ Burnfoot)	„ „ „	3	1 0	541 †	51·84	...
Durrisdeer (Drumlanrig Castle)	Mr. D. Thomson.....	5	0 6	191 †	37·00	...
Moffat (Ericstane)	J. J. Welsh, Esq.	...	...	550	48·05	...
ROXBURGH.						
New Castleton (The Flatt)	J. Elliot, Esq.	3	0 9	350 †	42·20	...
d Hawick (Wolfelee)	Mr. Cockburn.....	5	0 6	587	38·37	176
„ (Branxholme)	W. E. Lockhart, Esq... 3	0 2	451 †	32·90	...	
d *Jedburgh (Sunnyside)	G. Hilson, Esq.	5	6 0	351 †	25·50	162
d St. Boswell's (Elliston).....	The Hon. G. Dalrymple	5	1 0	352	27·21	191
Kelso (Springwood Park)	Mr. W. Chaplin.....	10	1 0	130 †	26·28	171
d Melrose (Asylum)	Mr. Pattman	5	0 6	480 †	29·18	220
d „ (Abbey Gate)	Mr. A. B. Dodds	5	0 6	280 †	31·73	221
Wooplaw [Galashiels]	J. Murray, Esq.....	5	1 0	880 †	31·43	161

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fcy.
		Diameter	Height Above Ground.	Height Above Sea Level	1888	
			ft. in.	feet.			inches.
SELKIRK.						
Selkirk (The Hangingshaw) ...	Miss Johnstone	5	0 3	670 T	36·85	...
Galashiels (Abbotsford Rd.).....	Dr. Somerville	5	0 6	416 T	31·69	198
PEEBLES.						
Innerleithen (The Glen)	A. Buchan, Esq.	...	...	...	37·45	...
Manor (Glenrath)	Mr. S. Linton.....	5	1 2	764 A	34 83	100
Peebles (Stobo Castle)	A. Buchan, Esq.	...	...	600	35·40	...
Innerleithen (Runic Cross) ...	Mr. R. Mathison	5	1 0	474 A	36·62	...
„ (Leithen Lodge) ...	Mr. D. Clark	11	0 0	700 T	43·53	...
Eddlestone (Portmore Res.) .	J. Oliver, Esq.....	11	0 6	1000	37·97	191
N. Esk Reservoir [Penicuik] ...	Mr. J. Garnock	11	0 6	1150 A	39·20	184
BERWICK.						
Coldstream (The Hirsell)	Mr. Cairns	3	0 7	75 A	23·97	167
„ (Milne Graden)	A. Buchan, Esq.	...	...	103	26·19	...
Marchmont House	Mr. P. Loney	5	1 0	500 T	33·51	199
Berwick (Paxton House)	A. Buchan, Esq.	5	0 6	90	25·69	...
Dunse (Clouds)	C. Watson, Esq.....	8	0 6	500 T	32·19	...
„ Castle	A. Buchan, Esq.	...	...	500	28·51	...
St. Abb's Head	Bd. of Northern Lights	...	0 4	211	19·96	134
HADDINGTON.						
Haddington (Asylum)	J. Mowat, Esq.	5	1 0	238 T	26·04	226
East Linton	Mr. J. Storie	3	0 3	90 T	24·98	158
Prestonkirk (Smeaton)	A. Buchan, Esq.....	...	...	100	25·52	157
North Berwick (Fidra)	Bd. of Northern Lights	...	...	...	21·28	...
EDINBURGH.						
Moorfoot Hills (Gladhouse Res.)	J. Oliver, Esq.	11	0 6	900	35·19	190
„ „ (Rosebery).....	„ „	...	...	750	31·34	151
Pentland Hills (Crosswood)	„ „	11	0 6	950	38·40	...
Gorebridge (Middleton)....	Miss Anstruther.....	5	0 6	750	33·81	183
Penicuik (Edgelaw Res.).....	J. Oliver, Esq.	11	0 6	654	31·01	151
Pentland Hills (Harper Rig).....	„ „	11	0 6	900	34·70	...
„ „ (Loganlea)	„ „	11	0 6	850	50·60	...
West Calder (Addiewell)	J. Fyfe, Esq.	5	0 6	695	34·47	...
Pentland Hills (Swanston)	J. Oliver, Esq.	11	0 6	550	31·55	...
„ „ (Glencorse Res.)..	„ „	11	0 6	787	43·36	156
„ „ (Harlaw)	„ „	11	0 6	800	33·40	...
„ „ (Clubbiudean Res)	„ „	11	0 6	750	33·75	118
„ „ (Harbour Hill) ...	„ „	11	0 6	1112	37·10	...
Colinton (Fernielaw).....	J. Leslie, Esq., C.E. ...	11	0 6	500	32·60	...
Dalmahoy	Dow Countess of Morton	5	0 10	...	31·25	152
Gilmerton Station	Mr. J. J. Bell	5	0 6	240	27·18	126
Liberton (Alnwick Hill Res.) ...	J. Oliver, Esq.	...	...	400	29·82	123
Portobello (Joppa)	R. Muirhead, Esq....	5	1 0	25 T	22·66	...
Edinburgh (Charlotte Square)..	J. Leslie, Esq., C.E. ...	11	0 6	230	24·86	...
„ „ „ „)...	„ „ „ „ „ „ „ „ „ „	12	63 0	300	18·24	...
„ (Cumin Place)	A. Buchan, Esq.....	5	1 0	162	27·34	...

DIVISION XIII.—SOUTH EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
EDINBURGH—(con.)			ft. in.	feet.	inches.	
Edinburgh (Streatham Ho.).....	A. Buchan, Esq... ..	...	...	...	26·30	...
„ (Napier Road).....	„ „	...	...	...	25·77	...
„	„ „	...	...	162	27·90	...
„ (Blacket Place)	R. C. Mossman, Esq....	5	1 0	249 †	26·69	188
Leith	The Meteor. Council ...	8	1 8	22	21·28	192
„ (Navigation School)	A. Buchan, Esq.	5	0 5	70	24·36	195
LINLITHGOW.						
Uphall.....	J. Fyfe, Esq.	...	...	...	28·07	...
Linlithgow (Rockville).....	Mrs. Adie	3	0 9	260	32·16	...

DIVISION XIV.—SOUTH WESTERN COUNTIES.

LANARK.						
Douglas (Newmains).....	Mr. J. Kerr.....	3	0 4	783	49·67	...
d Biggar (Cambus Wallace)	Captain Paul	6	0 6	748 †	30·30	173
Dalzell House	J G C Hamilton, Esq, MP	6	5 3	89 †	27·27	126
Hamilton Water Works	Mr. R. Watson	7	1 0	425 †	24·75	...
„ (Bothwell Castle)	Mr. W. F. Archibald...	10	18 0	146 †	22·01	136
† Cambuslang (Bushy Hill).....	Dr. Muirhead	5	1 0	146 †	28·75	197
d Airdrie (Hillend Reservoir)	Mr. W. Ritchie	6	4 6	620 †	34·66	107
Glasgow Observatory.....	Prof. Grant, F.R.S. ...	11	1 9	180	32·77	193
„	A. Buchan, Esq.	...	...	54	29·52	...
AYR.						
d Ballantrae (Glendrishraig).....	P. Murdoch, Esq.	5	1 0	320	36·99	174
Barrhill (Dochroyle)	Mr. J. Scott	6	0 6	548 †	48·69	...
d Colmonell	R. Aitken, Esq.	6	0 6	100 †	40·64	214
d Girvan (Pinmore)	Capt. Hamilton	5	1 0	187 †	42·51	203
Loch Finlas.....	J. Wilson, Esq., C.E. ...	5	1 0	849 †	45·13	192
Girvan (Turnberry)	Bd. of Northern Lights	...	...	...	28·80	117
Dalmellington (Benquhat)	A. Gillespie, Esq.	...	1 6	1128	50·49	197
Maybole (Culzean Gardens)	Mr. D. Murray	9	3 6	100	29·35	...
Ayr (Auchinlee).....	J. Drennan, Esq.	6	3 0	36 †	27·26	...
d Old Cumnock (Glaisnock).....	Mr. P. Braund ..	5	1 3	...	38·47	204
d „	Mr. J. Ballantine	5	1 0	380 †	38·65	200
„	A. Edgar, Esq.	...	...	450	34·36	...
Kilmarnock (North Craig)	R. Blackwood, Esq. ...	12	0 6	310	30·26	...
Ardrossan	The Meteor. Council ...	8	1 0	10	28·58	178
d „ (Kirkhall)	H. F. Weir, Esq.	8	2 9	106 †	33·71	164
Dalry (Carsehead)	Mrs. Aitken	5	1 1	160 †	45·71	201
Paisley W.W. (Camphill).....	R. Sharp, Esq.	4	1 6	611	63·10	..
Wemyss Bay (Asheraig)	Miss Stewart	10	2 10	15	43·12	..
Shaws W. Works (Kelly Dam)...	J. Wilson, Esq., C.E. ...	6	1 0	640 ?	59·90	...
RENFREW.						
Lochwinnoch (Castle Semple) ...	Mr. W. Thorburn	6	30 0	240	39·49	186

DIVISION XIV.—SOUTH WESTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which .01 or more fell
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
RENFREW—(con.)						
Paisley Gorbals's Dist. { Ryat Lynn	J. M. Gale, Esq., C.E..	8	0 5	310	44·75	...
W. Works { Waulk Glen	" " "	12	0 5	280	43·65	...
{ Middleton	" " "	12	0 5	550	51·00	...
{ Nither Cairn	" " "	...	...	700	52·95	...
{ Stanely	R. Sharp, Esq.	12	1 0	190	36·19	...
{ Back Thornleymuir	" " "	12	1 0	646	46·96	...
{ Muirhead	" " "	12	1 0	482 ∇	48·16	...
{ Springside	" " "	12	1 0	532 ∇	53·57	...
d Glasgow (Queen's Park)	Mr. D. McLellan	8	0 5	144 ∇	32·33	176
d Paisley (Ferguslie House)	Mr. Maclean	3	1 0	86 ∇	34·48	214
" (The Coats Observatory)	" "	10	1 0	100	34·06	...
{ Green Water	J. Wilson, Esq., C.E.	6	1 0	788 ∇	66·30	...
{ Garvocks	" " "	6	1 0	631 ∇	63·40	...
{ Glenbrae	" " "	6	0 9	574 ∇	63·50	...
{ Mansfield	" " "	5	1 0	573 ∇	63·30	235
{ Compensation Reservoir	" " "	6	1 0	600	54·70	...
{ Loch Thom	" " "	5	1 0	643 ∇	59·32	254
{ Darndaff Moor	" " "	6	1 0	840	62·20	...
{ Spango Burn	" " "	6	0 9	757 ∇	53·40	...
{ dHole Glen	" " "	5	1 0	603	49·00	227
{ New Yetts Dam	" " "	5	1 0	800	60·93	229
{ Prospect Hill	" " "	5	1 0	200	54·89	197
Port Glasgow (Douglichill Res.)	" " "	5	1 3	549 ∇	51·63	164
" " (Auchendores Res)	" " "	5	1 3	321 ∇	45·42	164

DIVISION XV.—WEST MIDLAND COUNTIES.

DUMBARTON.

New Kilpatrick (Chesters)	J. Kennedy, Esq.	5	1 0	240 ∇	35·75	...
d Dumbarton (Leven Shipyard) ...	Messrs. Denny, Bros.	5	1 0	21 ∇	44·09	206
Helensburgh (Lyleston)	Forrest Frew, Esq.	6	0 4	120	42·55	...
" (Rosemount)	L. P. Muirhead, Esq. ..	5	1 0	75	48·15	...
d " (Water Works) ...	J. R. Wilson, Esq. ...	6	0 3	300	44·87	210
Arrochar	Rev. J. Dewar	5	0 9	10	56·70	...

STIRLING.

Strathblane (Mugdock Reservoir)	J. M. Gale, Esq., C.E..	8	0 6	320	44·95	...
Falkirk (Kerse)	A. Brown, Esq.	8	1 0	...	29·60	...
d Killearn (Old Ballikrain) ...	Mr. J. Smith	5	0 6	265	52·68	181
Stirling (Polmaise Gardens)	Mr. W. W. Ritchie ...	6	1 0	12	35·20	...
Ben Lomond	J. M. Gale, Esq., C.E.	...	...	1800	73·60	...

BUTE.

Arran (Pladda)	Bd. of Northern Lights ...	...	3 3	55 ?	32·53	100
Holy Island (Lamlash)	" " "	...	...	...	45·56	113
Rothsay (Mount Stuart)	J. Kay, Esq.	3	2 6	100 ∇	47·60	...
d " (Barone Cottage)	" "	5	1 0	116 ∇	43·62	221
d " (Crichton Road)	H. Lander, Esq.	5	4 3	107	49·30	224

DIVISION XV.—WEST MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which .01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
			ft. in.	feet.	inches.	
ARGYLL—(MAINLAND.)						
D Holy Loch (Rosmor)	W. R. W. Smith, Esq.	5	1 1	30	66·50	195
Ardrishaig	A. Buchan, Esq.	8	0 6	14	64·83	...
Loch Eck (Benmore)..... M	J. Duncan, Esq.	6	1 0	35	84·08	...
D Lochgilphead (Kilmory) <i>Snowdon</i>	Sir J. Campbell Orde, Bt.	5	...	...	56·12	192
D " (Poltalloch)	Mr. J. Russell	3	4 6	121	50·65	213
D Oban (Craigvarren)	G. W. Brenan, Esq., C.E.	5	1 0	143	56·61	214
D " (The Corran)	Dr. Bailey	5	1 0	20	52·48	214
D Lock Etive (Ardchattan Priory).	Sir J. B. Lawes, Bt....	...	1 0	...	58·77	194
Appin (Aird's)	R. Macfie, Esq.	5	0 11	41 T	48·50	...
Ballachulish	D. Campbell, Esq., M.D.	8	0 10	20	77·54	209
D Strontian (Laudale)	A. Fletcher, Esq.	8	1 0	15 T	75·25	231
D Loch Sunart (Glenborrodale) ...	J. J. Dalgleish, Esq....	5	0 2	60 L	79·32	223
Ardnamurchan	Bd. of Northern Lights	...	3 6	28 ?	34·19	151
D " (Achateny).....	Mr. R. Coltart	5	0 2	61 T	51·40	204
Loch Eil (Corran)	Bd. of Northern Lights	...	0 4	14 ?	76·10	167
D " " (Conaglen)	Dow. Countess of Morton	5	0 10	36	79·66	199
ARGYLL—(INSULAR.)						
Cantire, Mull of.....	Bd. of Northern Lights	...	...	279 ?	36·36	122
" (Campbeltown, Devaar)	...	...	3 4	75 ?	39·21	131
" (Skipness Castle)	Mr. P. Maclean	6	1 6	27 L	47·45	...
" (Stonefield, Tarbert) ...	Colin G. Campbell, Esq	3	1 3	90	68·10	...
D Islay (Ardbeg)	C. Hay, Esq.	5	7 0	35	39·24	206
" (Rhinn)	Bd. of Northern Lights	...	3 0	74 ?	31·72	171
" (Lochindaal).....	" "	...	...	...	42·41	152
" (McArthurshead).....	" "	...	...	...	70·65	162
D " (Eallabus).....	J. S. R. Ballingall, Esq.	5	1 0	68 T	45·79	188
D* " (Gruinart School House)...	Mr. D. Mac Gilp	5	1 0	214 T	38·87	187
" (Rhuvaal).....	Bd. of Northern Lights	...	...	...	38·79	103
Jura (Bay of Small Isles)	H. Evans, Esq.	...	...	...	59·10	...
" (Lowlandmansbay)	Bd. of Northern Lights	...	...	...	52·74	167
" (Fladda)	" "	...	...	...	53·10	126
" (Ardfin)	Miss J. H. Campbell...	5	0 6	130	53·70	..
Lismore (Mousedale)	Bd. of Northern Lights	...	3 4	37 ?	39·33	164
Mull (Earraid)	" "	...	...	...	43·47	114
D " (Quinish)	J. N. Forsyth, Esq. ...	5	0 9	35	51·84	197
Tyree (Hynish)	Bd. of Northern Lights	...	...	...	49·98	162
D Coll (Acha School).....	Mr. R. Macgregor	5	1 6	100 T	46·50	183

DIVISION XVI.—EAST MIDLAND COUNTIES.

CLACKMANNAN.

Tillicoultry.....	J. Wilson, Esq.	5	0 6	65 T	34·10	160
" (Tillicoultry House)...	Col. A. Mitchell.....	5	0 1	...	41·73	...
" (" ")...	" " " "	5	1 1	...	41·18	...
D Dollar	Mr. A. Blackwood	9	1 0	178	35·01	151

DIVISION XVI.—EAST MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain 1888	Days on which ·01 or more fell
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
KINROSS.						
Loch Leven Sluice	Mr. W. Clark	7	0 7	360 l	32·70	...
d Kinross (Turfhills)	G. Henderson, Esq. ...	5	0 6	400 ∇	40·84	183
FIFE.						
Inchkeith	Bd. of Northern Lights	...	...	160	17·95	113
d Dunfermline (Keavil)	L. Dalgleish, Esq.	5	0 2	150	26·82	177
d " (Outh)	" " "	5	0 2	890	20·60	127
Isle of May	Bd. of Northern Lights	...	...	...	17·22	...
Pittenweem (The Priory)	Rev. F. K. Lloyd	5	0 10	50	24·17	...
Kilconquhar (Balcarres)	Mr. E. Tate	5	1 0	300 $\uparrow$	36·95	202
d Strathmiglo (Loden Urquhart) ..	J. Thom, Esq.	5	1 0	615 $\uparrow$	34·56	165
Cupar (Fife & Kinross Asylum) ..	Dr. Turnbull	5	0 4	210	19 30	159
St. Andrews (Castle Cliff)	A. Buchan, Esq.	...	...	65	28·68	...
d " (Pilmour Cottage) ..	Mr. R. Younger	5	1 0	...	27·34	173
Kilmany (Mountquhanie House) ..	D. Gillespie, Esq.	3	1 3	240	25·60	...
PERTH.						
d Culross (West Grange)	J. J. Dalgleish, Esq. ...	5	0 2	116 ∇	31·45	141
Menteith (Cardross)	H. D. Erskine, Esq. ...	...	1 6	...	53·40	...
Aberfoyle	J. M. Gale, Esq., C.E..	8	0 6	60	56·50	...
Dunblane (Kippendavie)	P. Stirling, Esq.	3	...	362 $\uparrow$	37·85	...
" (Kippenross)	" " "	3	0 4	150 ∇	34·20	...
Sheriff Muir (Lynns Farm)	" " "	...	1 0	680	31·24	...
Loch Dhu	J. M. Gale, Esq., C.E..	8	0 6	325	75·50	...
Ledard	" " "	...	...	1500	61·05	...
Loch Drunkie	" " "	8	0 6	420	61·65	...
" Vennachar	" " "	8	0 6	275	55·60	...
d Lanrick Castle	Mr. J. Begg	3	1 0	...	46·90	139
Bridge of Turk	J. M. Gale, Esq., C.E..	8	0 6	275	62·80	...
Loch Katrine (Tunnel Hill Top) ..	" " "	8	0 6	830	61·90	...
Between Glen Finlas & Ben Ledi ..	" " "	8	0 6	1800	53·55	...
Callander (The Gart)	D. Ainslie, Esq.	6	0 6	...	57·57	...
" (Leny)	J. B. Hamilton, Esq. ...	3	0 4	340 $\uparrow$	52·60	...
Glen Gyle	J. M. Gale, Esq., C.E..	...	...	380	89·40	...
d Balquhiddie (Stronvar)	J. Dickson, Esq.	6	1 0	422 $\uparrow$	73·05	218
d Comrie (Dalginross)	P. McRostie, Esq.	5	0 4	200 $\uparrow$	52·70	195
Crieff (Ochertyre)	A. Buchan, Esq.	3	0 9	333	43·54	...
Perth (Rosebank)	" " "	...	...	140	32·66	...
" (Huntingtower Field) ..	Mr. A. Bayne	6	0 9	40	32·80	...
d Coupar Angus Station	Mr. J. Robertson	5	1 3	183 $\uparrow$	31·38	179
d Dunkeld (Inver Braan)	Rev. J. M. B. Murdoch	...	1 0	500 ?	40·44	129
d " Station (H.R.S.)	The Station Agent	5	1 0	212 $\uparrow$	42·21	112
Meigle (Arthurstone House)	P. Carmichael, Esq. ...	5	2 3	187 ∇	33·19	...
" " Garden) ..	" " "	5	2 3	196 ∇	30·82	...
d Dalnaspidal (H.R.S.)	The Station Agent	5	3 0	1414 $\uparrow$	56·66	242
FORFAR.						
Buddonness Lighthouse	D. Cunningham, Esq. ...	...	...	...	23·99	...

DIVISION XVI.—EAST MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
FORFAR—(con.)						
Dundee (Harbour).....	D. Cunningham, Esq...	5	1 0	...	30·07	...
D Broughty Ferry (Douglas Ho.)...	Mr. K. Graham	5	5 6	60 ∇	28·52	167
D Dundee (Eastern Necropolis) ...	W. B. McKelvie, Esq..	3	0 4	199 $\uparrow$	28·05	150
D " (" ") new	" " "	3	0 4	199 $\uparrow$	28·40	211
" (Camperdown Jute Works)	The Storekeeper.....	5	3 8	290	25·84	...
Monifieth (Fountain Brae)	Messrs. Laird & Sinclair	6	1 0	55	27·68	...
D " (Sea View)	W. Low, Esq.	8	1 0	83 ∇	26·94	185
D†Craigton.....	J. Watson, Esq., C.E.	8	1 0	481	40·64	169
† "	" " "	11	0 3	481	39·31	...
†Crombie Reservoir	" " "	11	0 3	522 $\uparrow$	36·86	...
†Hill Head	" " "	11	0 3	570 $\uparrow$	37·44	...
D Arbroath (Waterworks)	J. D. Watson, Esq., C.E.	5	1 0	58	24·18	168
" (")	" " "	5	1 0	58	24·42	...
D " (" tower) ...	" " "	5	48 0	157	16·45	144
" (" ") ...	" " "	5	48 0	157	16·81	...
D " (Cemetery)	Mr. J. M'Coll.....	5	1 1	102	29·93	180
D Kirriemuir (Lintrathen)	J. Watson, Esq., C.E.	8	1 0	700	37·56	174
" (")	" " "	8	1 0	700	37·07	...
" (" Creich Hill)	" " "	8	1 0	1500	36·70	...
Montroseness	Bd. of Northern Lights	...	...	...	28·34	...
Montrose (Sunnyside Asylum)...	Dr. J. C. Howden	5	0 10	200	27·77	115

DIVISION XVII.—NORTH EASTERN COUNTIES.

KINCARDINE.

The Burn [Brechin]	Col. McInroy	5	0 6	250	36·20	...
D Fettercairn (Arnhall)	J. H. Hay, Esq.....	5	0 6	164	32·85	114
"	A. C. Cameron Esq. LL.D	5	0 4	237 ∇	28·64	177
Girdleness	Bd. of Northern Lights	...	4 7	86	21·11	...

ABERDEEN.

D†Braemar	J. Aitken, Esq.	8	0 9	1114 $\uparrow$	35·01	217
Forest of Glen Tana	Sir W. C. Brooks, Bt..	5	1 0	576 $\uparrow$	39·97	118
Aboyne Castle.....	Mr. G. H. Smythe.....	5	1 0	453 $\uparrow$	29·43	211
D Cromar (Logie Coldstone Manse).	Rev. Dr. Davidson.....	5	1 0	694 ∇	28·30	207
" (" " Loanhead).	Mr. A. Farquharson ..	5	1 0	743 ∇	27·52	221
D Aberdeen (Cranford).....	D. McHardy, Esq. ...	5	1 0	120 $\uparrow$	31·98	227
† " (Rose Street)	Dr. A. Cruickshank ...	5	0 5	95 $\uparrow$	27·81	...
" (King's College)	The Meteor. Council ...	11	2 0	48	29·57	222
" (Gordon's Hospital) ...	A. Buchan, Esq.	8	1 6	66 $\uparrow$	28·42	225
D Midmar (Blackstock)	Mr. J. Barron.....	5	0 8	570 $\uparrow$	27·45	157
D " (Dun Echt Observatory)	Rt. Hon. Earl Crawford	8	0 11	461 ∇	27·63	184
Inverury (Manar Farm)	Mr. J. Walker	8	15 0	270 ?	24·90	...
Ellon (Kermuck)	Mr. T. Mair	11	0 6	300 $\uparrow$	28·75	...
Haddo House	Mr. J. Forrest	5	0 8	197 $\uparrow$	29·81	...
Peterhead (Buchanness)	Bd. of Northern Lights	...	...	...	25·31	116
D New Deer (Artamford Cottage)..	J. Joiner, Esq.....	5	1 0	551 ∇	31·51	253
D Old Deer.....	J. Walker, Esq.....	5	2 0	135 ∇	30·30	247

DIVISION XVII.—NORTH EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
BANFF.			ft. in.	feet.	inches.	
Keith (H.R.S.)	The Station Agent.....	5	1 0	364 7	28·50	210
Banff (St. Leonard's).....	A. Ramsay, Esq.	5	1 0	115 7	23·85	203
Boyndie (Whitehills)	Rev. W. Anderson ...	5	1 0	65 7	24·19	193
Cullen House	Mr. G. Berry	5	0 9	100 7	30·88	...
ELGIN OR MORAY.						
Grantown	Mr. W. Duncan.....	5	1 1	712 7	27·79	190
Craigellachie (Wester Elchies Sch)	Mr. J. Milne	8	1 0	560 7	31·33	174
Forres (H.R.S.)	The Station Agent.....	5	1 0	25	22·18	170
Gordon Castle.....	Mr. Webster	8	1 6	104 7	26·19	...
Elgin (Highfield)	A. Cameron, Esq.	5	0 11	80 7	25·67	202
NAIRN.						
Dunearn Lodge [Dava].....	A. Buchan, Esq.....	...	...	..	27·93	...
Nairn (School Ho.)	The Meteor. Council ...	8	1 9	84	20·64	209

DIVISION XVIII.—NORTH WESTERN COUNTIES.

WEST ROSS.‡						
Strome Ferry (H.R.S.)	The Station Agent	5	1 0	40 7	56·76	227
Applecross Gardens	Mr. D. McCowan	5	1 0	70 7	53·44	...
Strathconan [Beauly]	Mr. D. McIver	5	1 0	450	46·74	147
Glencarron Lodge	D. D. Munro, Esq.	5	1 0	504	80·80	248
Loch Torridon (Bendamph)	Rt. Hon. Earl Lovelace	5	...	36	74·88	...
Loch Vraon	Sir J. Fowler, Bt.	8	0 7	750	61·71	...
Braemore House	" " "	8	0 7	750	52·48	...
" Lodge	" " "	8	0 7	100	48·13	...
Lochbroom	Mr. M. Macleay	5	0 6	48	45·21	217
Isle of Lewis (Stornoway)	Bd. of Northern Lights	...	3 4	31 ?	27·18	178
" " "	The Meteor. Council ...	8	1 0	24	49·81	255
" (Butt of Lewis)	Bd. of Northern Lights	...	3 6	...	26·02	...
EAST ROSS.‡						
Achonachie Lodge [Beauly]	W. C. Preston, Esq. ...	5	1 0	125 8	31·46	235
Alness (Ardross Castle)	Mr. R. Massie	5	1 0	450 7	35·68	223
Fearn (Arboll)	Miss Hope-Douglas ...	5	1 2	65	21·70	...
" (Lower Pitkerrie)	R. Gordon, Esq., C.E..	5	1 0	95	22·92	165
Tarbetness	Bd. of Northern Lights	...	3 4	61 ?	31·97	113
WEST INVERNESS.						
Ben Nevis Observatory	A. Buchan, Esq.	5	...	4407	132·46	...
Fort William (Public School) ...	C. Livingstone, Esq. ...	5	1 0	36 7	70·34	229
Moidart (Roshven)	Prof. Blackburn	5	1 0	68 7	62·32	237
Loch Shiel (Glenaladale)	Major Macdonald	5	1 2	50 ?	99·39	241

‡ Including Cromarty.

DIVISION XIX.—NORTHERN COUNTIES.

Invershin	Mr. G. Young	5	4	0	20 †	32·81	...
D Golspie (H.R.S.)	The Station Agent.....	5	0	9	27	31·76	141
D „ {Dunrobin Castle}	Mr. D. Melville	5	1	0	14 †	31·42	156
„ { „ } M	A. „ „	3	0	3	13 †	30·75	...
Lairg	A. Buchan, Esq.	3	3	4	458	30·53	226
„ (H.R.S.)	The Station Agent.....	5	...	...	...	29·47	163
Assynt (Achumore)	J. Elliot, Esq.....	3	0	9	200 †	68·80	...
Stourhead	Bd. of Northern Lights	...	...	...	...	45·40	180
Scourie	J. Simpson, Esq.	5	0	4	28	40·12	...
Cape Wrath	Bd. of Northern Lights	3	3	6	355 ?	32·21	126

Wick	The Meteor. Council ...	8	1	9	77	29-97	243
† „ (H.R.S.)	The Station Agent.....	5	1	0	...	29-95	...
† „ (Nosshead)	Bd. of Northern Lights	8	4	8	127 ?	24-38	163
† Watten (H.R.S.)	The Station Agent.....	5	2	6	75 1	25-90	213
Thurso (Holburnhead)	Bd. of Northern Lights	3	0	8	60 ?	26-90	124
Dunnethead	„ „ „	...	3	0	...	31-69	162
Pentland Skerries	„ „ „	...	3	3	72 ?	22-31	188

D South Ronaldshay (Roeberry) ...	J. Gray, Esq.	5	1	2	101	30·31	218
Hoy (Cantickhead)	Bd. of Northern Lights ...	0	6	...	...	37·10	128

DIVISION XIX.—NORTHERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which ·01 or more fell.
		Diameter	Height Above Ground		Height Above Sea Level	
			ft.	in.	feet.	inches.
ORKNEY—(con.)						
Hoy (Graemsay Sound, East=High)	Bd. of Northern Lights	...	3	4	27 ?	35·53
" (" " West=Low)	" " "	...	3	4	...	29·46
Pomona (Swanbister)	The Meteor. Council ...	8	1	0	69 7/8	37·51
Shapinsay (Balfour Castle)	Mrs. Balfour	4	0	6	50	29·30
Sanda (Start Point)	Bd. of Northern Lights	11	0	6	29 ?	25·65
North Ronaldshay	" " "	...	3	4	21 ?	24·97
SHETLAND.						
Sumburghhead	Bd. of Northern Lights	...	...	...	...	19·73
" (Dunroseness) ...	The Meteor. Council ...	8	1	0	84	34·04
Bressay Lighthouse	Bd. of Northern Lights	5	0	4	60	42·51

IRELAND.

DIVISION XX.—MUNSTER.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fell.	
		Diameter	Height above Ground.	Height above Sea Level			
			ft.	in.	feet.	inches.	
CORK.							
D Dunmanway (Coolkelure)	Col. Shuldham	5	2	0	500 T	64·26	225
Roche's Point.....	The Meteor. Council ...	8	1	9	32	55·46	193
Carrigaline (Ravenswood).....	Late M. H. Westrop, Esq	5	1	0	130 L	50·75	185
D Cork (Blackrock)	J. B. Binyon, Esq. ...	8	6	0	35 T	48·86	201
D „ (Clarence Place)	W. Miller, Esq.....	5	3	6	109 A	41·09	191
„ (Park View).....	R. C. Sikes, Esq.	5	1	0	123 B	46·06	...
Fermoy (Gas Works).....	Mr. J. Grant	5	1	1	...	39·67	173
Ballyhooly (Wood Cottage)	R. H. Wake, Esq., M.D.	5	1	3	195 A	47·66	...
KERRY.							
Kenmare (Derreen)	Mr. W. Holbrow	5	1	0	74 T	67·51	178
„ (Inishfea)	R. J. Mahony, Esq. ...	...	...	...	...	46·54	...
D Dromore Castle	„ „ „	5	0	6	50 L	51·91	180
Valencia (Telegraph Station) ...	The Meteor. Council ...	8	1	0	12	46·42	245
„ (Observatory).....	„ „ „	11	2	0	11	47·81	244
Mangerton	Ven Archdeacon Wynne	8	0	8	1760 B	88·50	...
D Killarney (Woodlawn)	„ „ „	5	1	1	91 T	53·58	209
„ (Asylum)	„ „ „	5	0	10	180 T	51·83	...
„ (Gap of Dunloe).....	M „ „ „	8	3	0	78	89·50	...
WATERFORD.							
Cappoquin House	Sir R. F. Keane, Bart..	5	1	6	275 A	48·17	151
Knockaderry	M. J. Fleming, Esq. ...	5	0	8	230 T	41·44	204
D Waterford (Brook Lodge).....	C. P. Bolton, Esq., C.E.	5	1	0	100 T	39·01	185
D „ (Ticor)	M. J. Fleming, Esq. ...	5	0	8	171 T	38·68	164
„ (Newtown)	T. N. Harvey, Esq. ...	11	12	9	77	34·38	...
D Portlaw (Mayfield).....	J. Anderson, Esq.	5	4	0	70	48·94	192
D Glenam [Clonmel]	Miss Grubb.....	8	1	4	80 T	47·78	196
TIPPERARY.							
D Tipperary (Henry Street).....	J. Dowling, Esq., M.D.	5	1	0	400 P	38·18	206
Fethard (Mobarnane)	Dr. Donaldson	5	1	1	370	36·68	169
D Derrycastle [Killaloe] ...	Mr. T. Manly.....	5	1	6	580 T	39·62	229
D Nenagh (The Lodge)	Heber Koe, Esq.	5	1	0	100	24·22	181
D „ (Clashnevin).....	J. Mounsey, Esq.	5	1	2	300 A	30·19	198
D „ (Castle Lough).....	A. Parker, Esq.	5	1	3	120 T	35·29	212
D Ballingarry (Hazelfort)	Mrs. Fraser.....	5	1	0	...	30·72	193
LIMERICK.							
Rathkeale	J. Horan, Esq.	5	1	0	144 A	32·96	235
Jane Ville [Tipperary]	R. Harding, Esq.	5	1	0	366	47·38	...
Foynes	The Meteor. Council ...	...	...	...	...	36·95	...
D Limerick (Kilcornan)	Mr. G. Smyth	5	1	0	...	28·39	150

DIVISION XX.—MUNSTER—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1888	Days on which -01 or more fell.
		Diameter	Height Above Ground		Height Above Sea Level	
			ft.	in.	feet.	inches.
CLARE.						
▷ O'Briensbridge (Ross)	J. Digan, Esq.	10	2	0	93	31·34 207
▷ Sixmilebridge (Kilkishen)	Rev. Canon Lloyd	5	4	4	113 ∇	29·77 191
▷ Broadford (Hurdlestown)	Capt. Bentley	5	1	0	164	30·34 225
▷ Ennis	J. Hill, Esq., C.E.	10	3	2	21 $\perp$	34·96 176
▷ „ (Roslevan)	Mrs. Scott	5	1	9	...	34·84 173
▷ Miltown Malbay	M. Molohan, Esq.	5	1	0	400 $\uparrow$	40·59 239

DIVISION XXI.—LEINSTER.

WEXFORD.

▷ New Ross (Longraigue)	J. W. Deane, Esq.	5	1	0	210 $\uparrow$	41·75 191
▷ Wexford (Alma)	E. M. Ryan, Esq.	5	1	9	50 ∇	41·74 158
▷ „ (Felt House)	W. Charlton, Esq.	5	3	3	0	31·03 143
▷ Enniscorthy (Ballyhyland)	J. Moffat, Esq.	5	1	0	365 $\uparrow$	46·06 220
▷ Oulart (Wells)	C. M. Doyne, Esq.	5	0	6	...	44·14 167
▷ Gorey (Courtown House)	RtHon Earl of Courtown	5	3	0	80 $\uparrow$	36·71 183

KILKENNY.

Rosbercon Castle [New Ross] ...	A. E. Graves, Esq. ...	10	2	6	60	36·08 137
▷ Inistioge (Woodstock)	Lady Louisa Tighe ...	5	4	6	400 $\uparrow$	47·12 187
Graigie (Brandondale)	Mrs. Burtchaell	5	2	0	90 $\uparrow$	42·90 126
Lavistown	D. A. Milward, Esq.	5	1	0	180 $\uparrow$	32·41 177
Kilkenny Castle	The Meteor. Council ...	8	...	...	...	34·41 ...

WICKLOW.

Greystones (Knockeevin)	Miss Alice Price	5	0	8	40	34·54 138
▷†Bray (Fassaroe)	R. M. Barrington, Esq.	10	5	0	250	44·35 192

CARLOW.

▷ Bagnalstown (Fenagh House) ...	Mr. R. Pinnington	5	1	0	340	41·24 168
▷ Carlow (Browne's Hill)	R. C. Browne, Esq.	5	1	0	291 ∇	35·33 198

QUEEN'S COUNTY.

Abbey Leix (Blandsfort)	J. L. Bland, Esq.	8	3	0	532 ∇	33·94 206
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KING'S COUNTY.

Parsonstown (Birr Castle)	The Meteor. Council ...	8	0	11	180	28·53 206
„ („ „)	RtHon Earl of Rosse FRS	8	0	7	183	29·68 199

KILDARE.

▷ Straffan House	Mr. F. Bedford	5	2	0	240	32·31 186
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DUBLIN.

▷ Glensmoel Lodge	C. E. Atkinson, Esq., CE	5	1	6	800 $\uparrow$	54·77 250
▷ „ (Rathmines W.W.) ...	„ „ „ „ „ „ „ „	5	1	6	581 ∇	43·02 206
▷ Killiney (Clonevin)	R. O'B. Furlong, Esq. ..	5	1	0	250 $\uparrow$	27·82 182
▷ „ (Eirine)	Rev. H. Palmer	5	1	0	55	26·66 179

DIVISION XXI.—LEINSTER—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1888	
DUBLIN—(con).						
D Dublin (Fitz William Square) ...	J. W. Moore, Esq., M.D.	5	3 4	54 T	28·68	190
„ (Upper Leeson Street) ...	G. D. Powell, Esq., M.D.	5	0 6	49 T	28·76	196
„ (Phoenix Park)	Col. Coddington, R.E.	8	1 0	162 T	28·72	253
D Glasnevin (Botanic Gardens) ...	F. W. Moore, Esq. ...	8	0 11	62 T	26·75	162
D Balbriggan (Laragh).....	Rev. S. P. Warren	5	1 0	57 T	29·03	198
MEATH.						
D Clonee (Williamstown)	W. Johnston, Esq....	5	1 0	200	28·99	209
D Trim	P. Malone, Esq., C.E.	10	4 2	180 T	30·17	145
D Navan (Balrath)	R. W. Walsh, Esq., C.E.	5	2 0	160	31·05	137
Moynalty (Westland)	W. A. Barnes, Esq. ...	5	1 4	265	34·89	198
WESTMEATH.						
D Mullingar (Belvedere)	Mr. J. Bayliss	5	1 0	367 T	34·19	166
D Athlone (Twyford)	J. Hodson, Esq.....	5	5 0	188 T	31·63	208
LOUTH.						
D Ardee (Lissrenney)	T. F. Filgate, Esq.....	8	0 10	75 T	32·11	198
Louth (Stephenstown)	Col. Fortescue	5	0 11	75 T	30·58	186
D Dundalk (Farndreg)	J. Barton, Esq.	5	1 0	90 T	28·24	140
D Ravensdale (Anaverna)	Miss Stephen	8	1 9	255 T	38·83	216
D „ School	Mr. Locke	8	1 6	200	40·11	175
D Greenore.....	T. Chambers, Esq.....	5	1 0	4 L	30·73	152
LONGFORD.						
D Edgeworthstown (Currygrane Ho)	J. M. Wilson, Esq.....	5	1 0	265 T	36·96	200

DIVISION XXII.—CONNAUGHT.

GALWAY.						
D Galway (Queen's College)	Prof. Anderson	5	1 0	22	31·49	197
D Ballinasloe	W. H. Kempster, Esq.	5	0 6	150 T	32·18	219
D „ (Garbally)	Mr. J. Cobban	8	1 0	157 T	35·43	231
D Woodlawn	Mr. A. Porter	5	3 6	300 T	34·30	211
D Ahascragh (Clonbrock)	Rt. Hon. Lord Clonbrock	10	5 6	200 T	35·14	153
D Clifden (Kylemore)	Mr. T. McNab	5	1 0	105	65·91	211
Tuam (Gardenfield)	H. Kirwan, Esq.	5	1 0	155 T	41·49	...
„ („) ... Snowdon	„ „ „	5	6 0	160 T	40·59	...
MAYO.						
Ballinrobe (Cranmore)	Miss Knox	5	1 6	...	43·39	...
„ (Kilrush)	J. Simson, Esq.	5	1 0	120 T	37·87	...
Westport (Oldhead House)	H. Wilbraham, Esq.	3	1 7	100 T	57·00	...
D Crossmolina (Enniscoe) ..	J. Pratt, Esq.	5	0 11	74 T	49·69	225
Belmullet	The Meteor. Council	8	...	...	44·47	239

DIVISION XXIII.—ULSTER.

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DIVISION XXIII.—ULSTER—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which '01 or more fell.
		Diameter	Height Above Ground		Height Above Sea Level	1888
			ft.	in.	feet.	inches.
ANTRIM—(con.)						
Carrickfergus (Copeland)	G. E. Reilly, Esq.	5	1	0	368 T	38·25 244
„ (Lough Mourne)	„ „ „ „	5	1	0	596 A	43·84 254
D Ballyclare	J. Sutherland, Esq. ...	6	1	0	210 T	35·75 152
Ballynure (Ballyboley)	Mr. T. H. Craig	5	1	4	400	39·67 186
Ballymena (Harryville)	A. Dawson, Esq.	5	1	0	150 T	37·15 257
D Broughshane (Quolie)	J. Lanyon, Esq.	...	1	0	...	41·04 245
D Cushendall (Cushendun)	Rev. St. A. Brennan ...	5	1	0	25 T	47·17 268
D Bushmills (Dundarave)	Sir F. E. Macnaghten, Bt	5	1	0	162 T	37·24 228
LONDONDERRY.						
D Garvagh (Moneydig)	Miss Morrison	5	1	0	121	36·56 217
Londonderry (Knockan)	Rev. H. F. Stevenson..	5	1	0	300	43·36 212
D „ (Clooney Terrace)	Mr. J. Conroy	5	1	0	75	37·39 230
D „ (Creggan Res.)	Mr. J. Hutchinson	8	1	0	320 T	38·44 249
D Limavady	C. D. H. Campbell, Esq.	5	4	0	81 T	33·85 230
„ (Drenagh)	C. T. McCausland, Esq	5	1	0	80	34·60 234
Bellarena	Sir F. W. Heygate, Bt.	5	1	0	12 T	39·00 225
D Coleraine	J. Kennedy, Esq.	5	4	0	52 T	37·51 198
TYRONE.						
Moy (Derrygally)	W. McG. Bond, Esq.	10	5	6	60 ?	30·21 175
„ „ „ „	„ „ „ „	5	5	6	60	35·64 175
D Stewartstown (The Square)	A. Johnston, Esq.	5	1	4	300 T	33·63 185
D Dungannon (Rockdale)	Col. Lowry	5	1	0	300 T	34·15 200
„ „ „ „	„ „ „ „	5	1	0	260 T	36·97 ...
D Stewartstown (Ardtree Rectory)	Ven. Archd. Meade	5	1	0	191 T	34·30 198
D Omagh (Edenfel)	Col. Buchanan	8	1	0	280 T	34·64 218
DONEGAL.						
D Killybegs	A. Brooke, Esq.	5	1	0	20	52·32 217
Castlefinn (Finn Lodge)	Sir F. W. Heygate, Bt.	5	1	0	50	36·48 182
Raphoe (Convoy Ho.)	Col. Montgomery	5	1	0	110 T	46·23 222
D Letterkenny (Carrablagh)	H. C. Hart, Esq.	5	1	0	130	42·38 244
Bloody Foreland (Ardnadreeah)	Rev. W. S. Griffith ...	5	0	9	39 T	44·92 ...
D Buncrana (Rockfort)	T. Colquhoun, Esq. ...	5	1	0	40	41·30 236
D Moville (Prospect Villa)	Mr. J. Lowry	8	2	0	78 L	37·10 223
D „ (The Rectory)	Rev. S. R. Craig	5	1	0	110 B	43·98 245
Malin Head	The Meteor. Council ...	8	...	...	...	32·17 232

G. J. S.

ARRANGEMENTS
FOR THE
SYSTEMATIC OBSERVATION
AND
RECORD
OF THE
RAINFALL OF THE BRITISH ISLES.

COMPILED BY

G. J. SYMONS, F.R.S.,

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Colonial Institute; Membre correspondant étranger Soc. Royale de
Médecine Publique de Belgique; Hon. Mem. Hertfordshire Nat.
Hist. Soc., Essex Field Club; Northamptonshire Nat. Hist.
Soc., Croydon Microscopic Soc., &c. &c. &c.*

FIFTH EDITION.

LONDON:
EDWARD STANFORD, COCKSPUR STREET, S.W.
1889.

Introductory and Historical.—I cannot help this section appearing to be egotistical ; the rainfall organization being entirely my own creation, it is impossible for it to be otherwise.

In the early part of the year 1859 I began collecting copies of records of the fall of rain, and early in 1861 wrote to all the observers of whom I was then aware, and asked them to send me all the records for the year 1860 that they could. I received 168 returns, and printed a table showing the total fall at all those places, being a larger number than had ever been classed together before. This publication gave a stimulus to observers, and from that time onwards their number has steadily increased until it is now nearly 3,000.

The amount of information published has increased even more, for whereas at first I printed only the total annual fall, I now publish essays on various branches of rainfall enquiry, and full abstracts of the most remarkable falls in short periods (ten minutes, half-an-hour, and so on), the heaviest falls in one day, tables of the monthly fall at several hundred stations, and, in short, give all the information which I can collect and which it seems expedient to print.

From the foregoing it will be evident that the compilation of the present annual volume (of which the short title is "British Rainfall, 1888," &c.) is a very serious labour. The mere checking of more than two thousand returns takes a long time, and so does the due arrangement of the various facts reported, and by no means the least onerous matter is ensuring the accuracy of the printing of the whole.

During the first few years I not only gave my own time gratuitously to the work, but also bore all the cost of postages and of printing. It soon, however, became far too great for me to bear, and my correspondents most kindly offered to share it with me. In 1865 the price of the annual volume was fixed at five shillings, and, although the size and cost of the volume has since so largely increased, that the price to the general public has had to be doubled, those observers who desire it are still allowed one copy at the old price. There are two reasons for this : (1) Because as the book could not be compiled without the help of observers, they ought to be allowed to have it as cheaply as possible ; (2) Because a small number of the observers (about 300, whose subscriptions are duly published) contribute annual sums varying from one to ten guineas towards the general expenses of the work.

The existing state of matters is, therefore, shortly as follows. There.

are nearly 3000 persons, well spread over England and Wales, Scotland and Ireland, each of whom is, I hope, strictly obeying the rules on page 5. To each of them I send on December 31st each year, blank forms for them to return to me filled with the facts observed by them. At the same time I send a list of the various publications, and invite such pecuniary aid as it may be agreeable to them to send.

I ought, perhaps, to say what becomes of the subscriptions. I will mention some of the outlets. (1) There are nearly a thousand observers whose returns have to be collected, examined, discussed, and printed, who do not contribute sixpence towards the cost thereof. (2) In some localities it is impossible to obtain volunteer observers, and there the observers receive regular salaries. (3) The mass of office work, correspondence, &c., is far beyond what I can myself accomplish; two regular assistants are, therefore, employed, and besides that, considerable sums are paid for extra assistance at times of pressure. (4) The expenditure for printing and postages is very large.

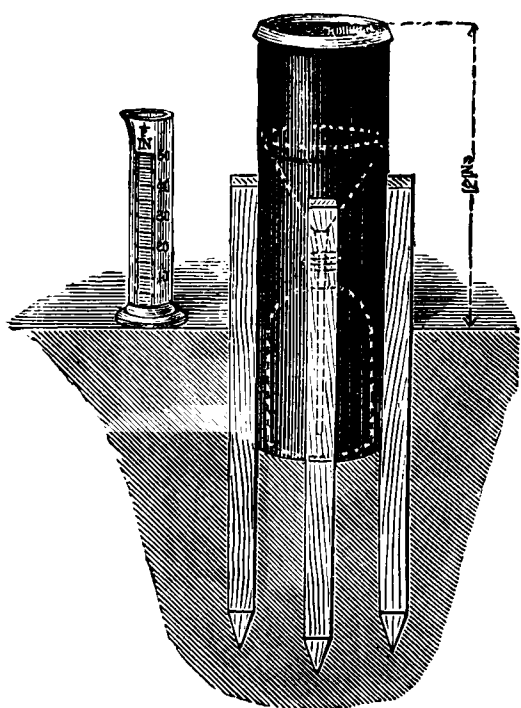
In addition to the annual volume, I publish a monthly periodical, *Symons's Monthly Meteorological Magazine*, giving, in addition to a full chronicle of the progress of meteorology, details of rainfall at about 100 stations. This is sent free to subscribers.

It may, perhaps, be added that it always affords me pleasure to reciprocate as far as possible the assistance which the observers render to me, either by affording them meteorological information, data as to the height of their stations above sea level, or advice as to the purchase of instruments.

In short, the state of the case is this: I have given myself up to the collection of statistics of rainfall—old ones and current ones; I invite everybody to help me, both with observations and with funds, and I promise, in return, to render to all my correspondents all the help that is in my power.

Patterns of Rain Gauges, and where to Buy them.—This is not a pleasant section to write, for there is considerable jealousy among the manufacturers, and I am almost certain to be accused of favouritism by some one. However, I have never patented any pattern of rain gauge, and therefore leave the field open to all.

Upon one point it is necessary to be despotic, viz., that amateurs never try to make their own gauges; they are almost certain to go wrong in some respect, and nothing is more vexing, both to the observers and to myself, than for it to be discovered after observations have been recorded for a long time that the labour of years is vitiated by an inaccurate instrument.



For use in ordinary localities I think that the annexed is the best pattern ; it is known as the Snowdon gauge ; it is five inches in diameter, is easily fixed by four stakes, as shown ; the glass jar, each division on which denotes $\frac{1}{100}$ th of an inch of rain, when filled up to the top division holds 0·50 in., or half an inch ; the bottle holds about three inches of rain, and, of course, in the very rare case of the fall exceeding that, the excess is saved by the can, and must be carefully measured. They cost from 10s. 6d. to £1 1s., according as they are made of japanned tin, of galvanized iron, or of copper. Where cost is no object, it is, by some, thought better to have a

rather larger gauge, viz., eight inches diameter, costing from £2 to £3, but I do not advise it.

Snowdon pattern rain gauges can, no doubt, be obtained from any optician, but it may be convenient to give, in alphabetical order, the names and addresses of a few of the principal makers :—

CASELLA, L., 147, Holborn, E.C.

HICKS, J. J., Hatton Garden, E.C.

NEGRETTI & ZAMBRA, Holborn Viaduct and Cornhill, E.C.

PASTORELLI, F., 10, New Bond Street, W.

Testing.—Wherever, and of whomsoever, rain-gauges may be bought it is very desirable that the purchaser should insist upon having certificates of their accuracy. Rain gauges are examined, and certificates issued, by Kew Observatory, and by myself, the charge in each case is the same, namely, 2s. 6d.

Blank Forms.—All blank forms required for returns to myself, and additional ones wherever desired, are supplied gratuitously, and even those sold are charged at little more than their actual cost.

Change of Residence.—Each observer is requested to decide upon a specific name for his station, and to notify immediately any change in the position of the gauge or the discontinuance of his record

SUGGESTIONS FOR SECURING UNIFORMITY OF PRACTICE AMONG RAINFALL OBSERVERS.

I.—SITE.—A rain gauge should not be set on a roof, a slope, or a terrace, but on a level piece of ground, at a distance from shrubs, trees, walls, and buildings—at the very least, as many feet from their base as they are in height. Tall-growing flowers, vegetables, and bushes must be kept away from the gauge. If a thoroughly clear site cannot be obtained, shelter is most endurable from N.W., N., and E., less so from S., S.E., and W., and not at all from S.W. or N.E.

II.—OLD GAUGES.—Old established gauges should not be moved, nor their registration discontinued until, at least, two years after a new one has been in operation, otherwise the continuity of the register will be irreparably destroyed. Both the old and the new ones must be registered at the same time, and the results recorded for comparison.

III.—LEVEL AND FIXING.—The funnel of a rain gauge must be set quite level, and so firmly fixed that it will remain so in spite of any gale of wind or ordinary circumstance. Its correctness in this respect should be tested from time to time.

IV.—HEIGHT.—The funnels of gauges newly placed should be 1 ft. above grass. Information respecting height above sea level may be obtained from the Editor.

V.—RUST.—If the funnel of a japanned gauge becomes so oxidised as to retain the rain in its pores, or threatens to become rusty, it should have a coat of gas tar, or japan black. Copper gauges are free from this evil, and far the best.

VI.—FLOAT GAUGES.—If the measuring rod is detached from the float, it should never be left in the gauge. If it is attached to the float, it should be pegged or tied down, and only allowed to rise to its proper position at the time of reading. To allow for the weight of the float and rod, these gauges are generally so constructed as to show 0 only when a small amount of water is left in them. Care must always be taken to set the rod to the zero or 0.

VII.—CAN AND BOTTLE GAUGES.—The measuring glass should always be held upright, or placed on a level slab; the reading is to be taken midway between the two apparent surfaces of the water.

VIII.—TIME OF READING.—Nine a.m. daily; if taken only monthly, then 9 a.m. on the 1st.

IX.—DATE OF ENTRY.—The amount measured at 9 a.m. on any day is to be set against the previous one; because the amount registered at 9 a.m. of, say, 17th contains the fall during 15 hours of the 16th, and only 9 hours of the 17th.

X.—MODE OF ENTRY.—If less than one-tenth ($\cdot 10$) has fallen, the cypher must *always* be prefixed; thus, if the measure is full up to the seventh line, it must be entered as $\cdot 07$, that is, no inches, no tenths, and seven hundredths. There must always be two figures to the right of the decimal point. Even in the case of one-tenth of an inch (usually written $\cdot 1$) a cypher must be added, making it $\cdot 10$. Neglect of this rule causes much inconvenience. All columns should be cast *twice*—once up and once down, so as to avoid the same error being made twice. Never copy a total, always cast the column afresh. When there is no rain, a line should be drawn rather than cyphers inserted.

XI.—CAUTION.—The amount should always be written down before the water is thrown away.

XII.—SMALL QUANTITIES.—The unit of measurement being $\cdot 01$, observers whose gauges are sufficiently delicate to show less than that, are, if the amount is under $\cdot 005$, to throw it away, if it is $\cdot 005$ to $\cdot 010$ inclusive, they are to enter it as $\cdot 01$.

XIII.—ABSENCE.—Every observer should train some one as an assistant; but where this is not possible, instructions should be given that the gauge be emptied at 9 a.m. on the 1st of the month, and the water bottled, labelled, and tightly corked, to await the observer's return.

XIV.—HEAVY RAINS.—When very heavy rains occur, it is desirable to measure immediately on their termination, and it will be found a safe plan after measuring to return the water to the gauge, so that the morning registration will not be interfered with. Of course if there is the slightest doubt as to the gauge holding all that falls, it must be emptied, the amount being written down, and added to the subsequent measurement.

XV.—SNOW.—In snow three methods may be adopted—it is well to try them all. (1) Melt what is caught in the funnel by adding to the snow a previously ascertained quantity of warm water, and then, deducting this quantity from the total measurement, enter the residue

as rain. (2) Select a place where the snow has not drifted, invert the funnel, and turning it round, lift and melt what is enclosed. (3) Measure with a rule the average depth of snow, and take one-twelfth as the equivalent of water: This being a very rough method, is not to be adopted if it can be avoided. Some observers use in snowy weather a cylinder of the same diameter as the rain gauge, and of considerable depth. If the wind is rough, all the snow is blown out of a flat-funnelled rain gauge. Snowdon pattern gauges are much the best.

XVI.—OVERFLOW.—Not a year passes in which some observers do not allow their gauges to overflow, it is therefore necessary to call attention to the fact that there does not seem to be any part of the British Isles where 4 inches may not fall in 24 hours. It is not desirable to purchase any gauge of which the capacity is less than 6 inches.

XVII.—SECOND GAUGES.—It is desirable that observers should have two gauges, and that one of them should be capable of holding 8 inches of rain. One of the gauges should be registered daily, the other weekly or monthly as preferred, but always on the 1st of each month. By this means a thorough check is kept on accidental errors in the entries, which is not the case if *both* are read daily. Observers having two gauges and recording both daily, should keep the records distinct, and forward a copy of each. Never take a mean of two.

XVIII.—DEW AND FOG.—Small amounts of water are at times deposited in rain gauges by fog and dew; they should be added to the amount of rainfall, because (1) they “tend to water the earth and nourish the streams;” and not for that reason only, but (2) because in many cases the rain gauges can only be visited monthly, and it would then obviously be impossible to separate the yield of snow, rain, &c.; therefore, for the sake of uniformity, all must be taken together, and as except by watching all night it is never possible to be certain that small amounts are wholly dew, it is best to count all entries of .01 in. or upwards as days with rain.

XIX.—DOUBTFUL ENTRIES.—Whenever there is the least doubt respecting the accuracy of any observation, the entry should be marked with a ?, and the reason stated for its being placed there.

XX.—BREAKAGE.—The Editor has no desire to supply rain gauges or glasses, or in any way to undertake, or interfere with, that which is the business of Opticians; but the continuity and permanent accuracy of the records of his correspondents is to him of such importance, that he deems it advisable to announce that any assistance in his power is always at their service.

LIST OF PUBLICATIONS.

BRITISH RAINFALL,

Cloth 8vo. 10s. (To Observers, 5s.)

This is the general summary and epitome of the year's work ; it contains a report upon the progress of rainfall investigations, and full records of the rainfall of each year. It is published annually, and all the volumes since 1864 can still be had.

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